This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

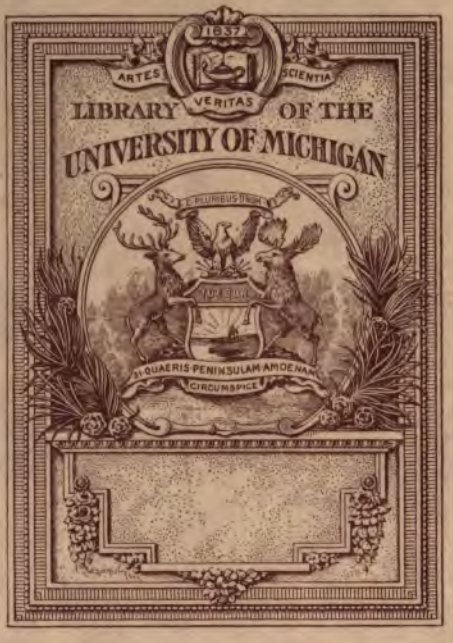
We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

A 413653



THE GIFT OF

Minn. State Med. Soc.

M67
S8t

TRANSACTIONS

OF THE

MINNESOTA STATE MEDICAL SOCIETY

THIRTY-THIRD AND THIRTY-FOURTH

ANNUAL MEETINGS

1901 and 1902

MINNEAPOLIS
NORTHWESTERN LANCET
1902

EXPLANATORY

The American Medical Association met in St. Paul, June 4-7, 1901. According to its constitution the State Medical Society should meet in St. Paul June 20-22, 1901. At the meeting in 1900 it was considered inadvisable that the State Society should meet soon after the meeting of the Association, and it was decided to abandon for the year 1901 the usual program, and to hold but a single session, for the transaction of business, on the day preceding the meeting of the Association.

The proceedings at this session did not warrant the publication of a separate book of transactions for the year 1901, therefore the present volume is made to contain the report of the Society for both the years 1901 and 1902.

OFFICERS OF THE SOCIETY

1901

PRESIDENT

WILLIAM ASBURY HALL, M. D.
Minneapolis

FIRST VICE-PRESIDENT

J. P. HUMES, M. D.
Winnebago City

SECOND VICE-PRESIDENT

J. D. SIMPSON, M. D.
Minneapolis

THIRD VICE-PRESIDENT

S. S. REIMSTAD, M. D.
Madelia

SECRETARY

THOMAS McDAVITT, M. D.
St. Paul

TREASURER

R. J. HILL, M. D.
Minneapolis

CENSORS FOR ONE YEAR

W. L. BEEBE, M. D.
St. Cloud

JUSTUS OHAGE, M. D.
St. Paul

CENSORS FOR TWO YEARS

A. W. ABBOTT, M. D.
Minneapolis

A. C. WEDGE, M. D.
Albert Lea

CENSORS FOR THREE YEARS

W. COURTNEY, M. D.
Brainerd

F. A. DUNSMOOR, M. D
Minneapolis

160588

COMMITTEES

1901

EXECUTIVE COMMITTEE

H. B. SWEETSER, M. D. Chairman

R. O. BEARD, M. D.
C. H. HUNTER, M. D.
J. W. LITTLE, M. D.
T. S. ROBERTS, M. D.

PUBLICATION COMMITTEE

TALBOT JONES, M. D., Chairman

R. J. HILL, M. D.
THOS. McDAVITT, M. D.
J. L. ROTHROCK, M. D.
HALDOR SNÉVÉ, M. D.

COMMITTEE ON FINANCE

D. B. PRITCHARD, M. D., Chairman.

R. F. LYNCH, M. D.
L. A. NIPPERT, M. D.
H. M. WORKMAN, M. D.

COMMITTEE ON NECROLOGY

J. W. MACDONALD, M. D., Chairman

D. M. COOL, M. D.
F. STAPLES, M. D.
A. J. STONE, M. D.
A. C. TAYLOR, M. D.

MEMBER OF THE HOUSE OF DELEGATES OF THE A. M. A.

A. W. ABBOTT, M. D.
PARKS RITCHIE, M. D., Alternate

MEMBER OF THE COMMITTEE ON LEGISLATION OF THE A. M. A.

H. M. BRACKEN, M. D.

COMMITTEE ON NOMINATIONS

J. E. MOORE, M. D., Chairman

W. L. BEEBE, M. D.
E. Y. CHILTON, M. D.
HARRY MORRELL, M. D.
HALDOR SNÉVÉ, M. D.

CHAIRMEN OF SECTIONS

MEDICINE

L. A. NIPPERT, M. D.

Minneapolis

SURGERY

J. W. ANDREWS, M. D.

Mankato

HYGIENE, MEDICAL EDUCATION, AND PUBLIC MEDICINE

W. S. FULLERTON, M. D.

St. Paul

COMMITTEE ON REVISION OF THE CONSTITUTION AND BY-LAWS

WM. DAVIS, M. D., CHAIRMAN

J. B. McGAUGHEY, M. D.
C. A. STEWART, M. D.
THOS. McDAVITT, M. D.
W. A. HALL, M. D.

COMMITTEE ON MEDICAL LEGISLATION

(To Serve for Two Years)

J. B. BRIMHALL, M. D., CHAIRMAN
R. O. BEARD, M. D., SECRETARY

J. W. ANDREWS, M. D.
J. W. BELL, M. D.
E. Y. CHILTON, M. D.
A. T. CONLEY, M. D.
WM. DAVIS, M. D.
BURNSIDE FOSTER, M. D.
C. L. GREENE, M. D.
A. F. GROVES, M. D.
R. J. HILL, M. D.
C. H. HUNTER, M. D.
R. N. JACKSON, M. D.
W. A. JONES, M. D.
THOS. McDAVITT, M. D.
J. W. MACDONALD, M. D.
W. H. MAGIE, M. D.
W. J. MAYO, M. D.
B. J. MERRILL, M. D.
J. B. McGAUGHEY, M. D.
JUSTUS OHAGE, M. D.
S. M. STOCKER, M. D.
H. A. TOMLINSON, M. D.
C. G. WESTON, M. D.
H. H. WILCOX, M. D.

OFFICERS OF THE SOCIETY

1902

PRESIDENT

J. W. ANDREWS, M. D.
Mankato

FIRST VICE-PRESIDENT

N. K. WHITTEMORE, M. D.
Elk River

SECOND VICE-PRESIDENT

MARY S. WHETSTONE, M. D.
Minneapolis

THIRD VICE-PRESIDENT

FLORENCE C. BAIER, M. D.
Minneapolis

SECRETARY

THOMAS McDAVITT, M. D.
St. Paul

TREASURER

R. J. HILL, M. D.
Minneapolis

CENSORS FOR ONE YEAR

A. W. ABBOTT, M. D.
Minneapolis

A. C. WEDGE, M. D.
Albert Lea

CENSORS FOR TWO YEARS

W. COURTNEY, M. D.
Brainerd

F. A. DUNSMOOR, M. D.
Minneapolis

CENSORS FOR THREE YEARS

WM. DAVIS, M. D.
St. Paul

W. A. HALL, M. D.
Minneapolis

COMMITTEES

1902

EXECUTIVE COMMITTEE

E. J. ABBOTT, M. D., CHAIRMAN

C. L. GREENE, M. D. G. G. EITEL, M. D.
A. MACLAREN, M. D. FRANK C. TODD, M. D.

PUBLICATION COMMITTEE

A. J. GILLETTE, M. D., CHAIRMAN.

FRED'K LEAVITT, M. D. W. E. ROCHFORD, M. D.
GEO. D. HEAD, M. D. M. P. VANDER HORCK, M. D.

COMMITTEE ON FINANCE

HERBERT W. DAVIS, M. D., CHAIRMAN

A. W. DUNNING, M. D. H. J. O'BRIEN, M. D.
BURNSIDE FOSTER, M. D. J. A. QUINN, M. D.

COMMITTEE ON NECROLOGY

E. D. STEELE, M. D., CHAIRMAN

A. T. CONLEY, M. D. J. W. B. WELLCOME, M. D.
J. H. DUNN, M. D. C. J. SPRATT, M. D.

MEMBERS OF THE HOUSE OF DELEGATES OF THE A. M. A.

FOR ONE YEAR FOR TWO YEARS

A. W. ABBOTT, M. D. WM. DAVIS, M. D.

COMMITTEE ON ORGANIZATION OF COUNTY SOCIETIES

W. S. FULLERTON, M. D.

CHAIRMEN OF SECTIONS

MEDICINE

C. L. GREENE, M. D.
St. Paul

SURGERY

H. B. SWEETSER, M. D.
Minneapolis

HYGIENE, MEDICAL EDUCATION, AND PUBLIC MEDICINE

A. C. ROGERS, M D.
Faribault

COMMITTEE ON NOMINATIONS

A. C. WEDGE, M. D., Albert Lea.....1st Cong. District
A. O. BJELLAND, M. D., Mankato.....2d Cong. District
R. N. JACKSON, M. D., Faribault .....3d Cong. District
A. J. STONE, M. D., St. Paul .....4th Cong. District
E. PHILLIPS, M. D., Minneapolis .....5th Cong. District
A. F. GROVES, M. D., Brainerd.....6th Cong. District
H. M. WORKMAN, M. D. Tracy.....7th Cong. District
W. H. MAGIE, M. D., Duluth.....8th Cong. District
P. A. WALLING, M. D., Park Rapids.....9th Cong. District

Proceedings

OF THE

Thirty-third Annual Meeting

WEDNESDAY, JUNE 3, 1901.

The thirty-third annual meeting of the Society was called to order by the president, Dr. Wm. Davis, of St. Paul, at 10 a. m. in the Senate Chamber, St. Paul, June 3, 1901, twenty members being present.

On motion of Dr. A. W. Abbott the reading of the minutes of the annual meeting of 1900 was dispensed with, and they were approved as they appeared on the records.

The chair appointed a finance committee to audit the treasurer's report, the committee consisting of Drs. D. B. Pritchard, J. W. Andrews, and C. E. Bean.

The secretary reported that on application the Albert Lea District Medical Society had been added to the list of Auxiliary Medical Societies; also that Dr. Arthur Sweeney, appointed as delegate to the meeting of the Committee on National Legislation at the last meeting of this Society had resigned, and the president had appointed Dr. H. M. Bracken.

A communication was read from Dr. A. MacDonald, of Washington, D. C., asking the co-operation of the Minnesota State Medical Society in the establishment of a Psychophysiological Laboratory at Washington with resolution appended to that effect, as follows:

RESOLVED, That we are in favor of the establishment of a Psychophysiological laboratory in the Department of the Interior at Washington for the application of physiological psychology to sociological and abnormal or pathological data, especially as found in institutions for the criminal, pauper, and defective classes, and in hospitals, and also as may be observed in schools and other institutions.

Dr. H. A. Tomlinson strongly urged the passage of the resolutions, and on motion they were passed unanimously.

On motion of Dr. R. J. Hill, Dr. J. H. Rishmiller, of Minneapolis, was reinstated as a member of the Society.

Dr. Burnside Foster, chairman of the Committee on New Members, said committee consisting of Drs. Foster, E. J. Abbott, Andrews, Hill, and McDavitt, reported the names of the following for membership and on motion they were elected to membership by the secretary casting the ballot for the Society.

Dr. H. Bouman, Torah.
Dr. Oscar A. Burton, Albert Lea.
Dr. Th. Thorderson, Minneota.
Dr. J. Francis Schefcik, Mapleton.
Dr. Carl J. Holman, St. Clair.
Dr. Jas. McKeon, Montgomery.
Dr. Edward E. Novak, New Prague.
Dr. G. W. F. Rogers, Bricelyn.
Dr. A. C. Heath, St. Paul.
Dr. J. L. Edmunds, Clearwater.
Dr. Jas. S. Gilfillan, St. Paul.
Dr. Arthur W. Allen, Austin.
Dr. A. S. Stowe, Rush City.
Dr. Geo. W. Nuckolls, Tintah.
Dr. C. DeJong, Edgerton.
Dr. D. W. Bolles, Brownton.
Dr. C. J. Beise, Fergus Falls.
Dr. M. Hansen, Hendrum.
Dr. Samuel S. Jones, Frazee.
Dr. W. A. Coventry, Brainerd.
Dr. H. D. Valin, St. Peter.
Dr. W. F. C. Heise, Winona.
Dr. E. E. Barnum, Pine City.
Dr. Edward C. Schoonmaker, Perham.
Dr. W. J. Richardson, Fairmont.
Dr. Geo. B. Weiser, New Ulm.
Dr. P. H. Irish, Akely.
Dr. Geo. S. Wattam, Warren.
Dr. Th. S. Egge, Moorhead.
Dr. R. T. Gilmore, Fosston.
Dr. A. M. Adsit, Hastings.
Dr. Ernest Hildebrandt, Forest City.
Dr. W. E. Chapman, Litchfield.
Dr. C. A. Andersen, Rush City.
Dr. F. W. Dimmitt, Red Wing.
Dr. O. H. Olsen, Erskine.
Dr. E. E. Brubaker, Northfield.
Dr. J. M. McMasters, Sauk Center.
Dr. C. L. Scofield, Benson.

By unanimous consent Article VI of the Constitution was suspended, and on motion of Dr. E. J. Abbott the secretary was instructed to cast the ballot for the Society for the re-election of the present officers, including the chairman of sections for the ensuing year. The motion, having been seconded by Dr. H. A. Tomlinson, was put to a vote and prevailed, and the secretary cast the ballot as instructed.

The president stated that as there was to be but one day's session the order of business would be suspended, and any motion relating to the Society would be in order.

The treasurer, Dr. R. J. Hill, submitted his annual report as follows:

R. J. HILL, TREASURER, IN ACCOUNT WITH THE MINNESOTA STATE MEDICAL SOCIETY

RECEIPTS

1900—	
To balance on hand	$ 776.47
To amount collected at annual meeting at Duluth	180.00
To amount collected since annual meeting	1,275.35
Total collections	$2,231.82

DISBURSEMENTS

June 29, A. G. Long, stenographer	$ 50.00
July 7, Christie & Collier, Duluth, printing	58.75
July 7, W. H. Magie, Chairman Executive Committee, stamps	5.00
July 7, Smith, Farewell & Still, chairs for Executive Committee	25.35
Aug. 1, Envelopes, stationery, etc., for secretary	14.35
Aug. 16, A. G. Long, stenographer	50.00
Aug. 21, G. D. Head, chairman section	5.00
Sept. 7, Exchange for Hutchinson, St. Peter, Tyler, Renville	.40
Oct. 27, Thos. McDavitt, postage for Transactions	40.00
Nov. 2, Ramsey County Medical Journal, printing Transactions	217.50
Nov. 2, For check-book	1.10
Nov. 2, Express on Transactions	.15
Dec. 7, Alex. R. Colvin, Secretary Legislative Committee	26.08
1901—	
Jan. 4, Arthur Sweeney, Legislative Committee	35.50
Feb. 16, 500 stamped envelopes for treasurer	10.60
Feb. 19, F. W. Bigelow, printing envelopes	1.50

March 9, H. M. Bracken, expenses Public Health Association	50.00
March 19, Alex. R. Colvin, Secretary Legislative Committee	9.16
March 20, Postage Transactions, J. P. Johnson, Owatonna	.20
April 12, F. W. Bigelow, 500 receipts for Treasurer	5.50
April 12, F. W. Bigelow, 500 notices of dues, 5 books	4.00
April 20, Davis, Kellogg & Severance, Legislative Committee	25.00
April 20, Arthur Sweeney, Legislative Committee	7.95
April 26, G. W. Cunningham, 500 stamped envelopes and 500 circulars for Secretary	13.50
April 3, Brown, Treacy, Sperry & Co., letter-file for Secretary	.50
April 6, Exchange	.80
April 3, G. W. Bigelow, 500 stamped envelopes, printed	12.10
April 18, C. H. Hunter, chairman Entertainment Committee, voted for entertainment of Amer. Med. Asso.	250.00
April 18, Thos. McDavitt, salary as Secretary, 1901	100.00
April 18, R. J. Hill salary as Treasurer, 1901	100.00
Total	$1,119.99
Total receipts	$2,231.82
Total disbursements	$1,119.99
Bal. on hand, June 3, 1901	$1,111.83

On motion the treasurer's report was received, accepted and placed on file.

Dr. R. J. Hill moved that for the ensuing year By-law No. 15 be suspended, and the dues fixed at $2.00. Motion lost.

Dr. J. W. Andrews, having given notice at last annual meeting of his intention to present a resolution at this meeting, presented the following:

WHEREAS, It is the part of wisdom that the Minnesota State Medical Society carefully discriminate as to the qualifications, and the moral and professional standing of all who seek admission into said Society; (1) Because this is essential to the healthful growth of the Minnesota State Medical Society; (2) Because County and other auxiliary societies look to the State Society to set an example in fostering and protecting the present high standard of the medical profession in this state, therefore

RESOLVED, That any person desirous of becoming a member of the Minnesota State Medical Society, shall send his or her name to said Society in writing by petition signed by two members of the State Medical Society who shall personally know the applicant; said petition shall then be referred to the

Committee on New Members, but it shall not refer the same back to the Society with its recommendation until the next succeeding annual convention of the Minnesota State Medical Society.

This resolution further provides that the names of all persons who shall petition this Society for membership, together with the names of those who sign the petition, shall be printed in the Transactions of the meeting of the Society at which the petitions were presented, and that mention shall be made in the Transactions of the fact that these applicants will be voted upon for membership at the next annual meeting.

Dr. Andrews moved the adoption of the resolution. After discussion by the president, Dr. Foster, and Dr. Andrews, Dr. Andrews withdrew his motion for the adoption of the resolution, and the resolution was ordered filed with notice of calling it up for action at the next annual meeting.

Dr. Foster moved that the above resolution be printed in the medical journals of the state, and that a copy of it be mailed to each member of the Society within sixty days of the adjournment of this meeting. This motion prevailed.

The president called upon Dr. Pritchard for a report of the Committee on Medical Defense Association. Dr. Pritchard reported progress, and the subject was discussed by Drs. Andrews and Allen.

Dr. Sweeney, chairman of the Legislative Committee, made an oral report of the action of the committee. The committee met a number of times and drafted a bill. This bill met with opposition in the profession, and it was due to this opposition that the bill failed of passage in the legislature. The Osteopaths also presented a bill. It was apparent, after a canvass of both houses, that no harmful legislation would be passed, and under ordinary circumstances the medical bill would be passed. It was reported for passage by the committee, and was fought in the senate an entire day by Senators Horton and Greer and a few others. There was a majority of fourteen on each vote until 5 o'clock p. m. At this time the Osteopaths succeeded in getting an amendment passed. Senator Jepson at once moved that the medical bill be indefinitely postponed, and this

was ordered. Later in the session an effort was made to pass a law exempting physicians who held licenses from other states from passing an examination. This bill was finally defeated.

The committee spent $103.00 of the $300.00 appropriated for this use.

Dr. Sweeney presented the following resolution:

RESOLVED, That the Minnesota State Medical Society, desiring to show its appreciation of the efforts of Senator L. E. Jepson made in behalf of higher medical education during the session of the legislature of 1899-1901, hereby tenders him the thanks of the Society in behalf of the profession of the state.

On motion of Dr. L. A. Nippert the report of the Legislative Committee, together with the resolution of thanks to Senator Jepson, was adopted unanimously.

Dr. Andrews objected to Dr. Sweeney's advice that nothing further be done in the way of medical legislation for a time, and strongly advised earnest effort to formulate a bill to meet the views of the profession and try to have it passed.

Dr. Sweeney stated that the hardest opposition the committee had to meet was the resolution condemning the bill passed by the Minnesota Academy of Medicine. He did not desire going into another fight "with a fire from the rear."

Dr. Greene thought the thanks of the Society due to Dr. Sweeney, and it was useless to retain the committee unless they have the influence of a united profession.

Dr. Foster said the endorsement of the Society should carry the endorsement of each member; at least if it did not meet with any one's entire approval, he should not use his influence to defeat it.

Dr. Andrews moved that the same Legislative Committee be continued, and that they be instructed to prepare a medical bill for consideration at the next annual meeting, that the bill be completed at least two months before the next annual meeting of the Society, and a copy be mailed to each member of the Society. The motion was seconded and unanimously carried.

Dr. H. M. Bracken as representative to the Committee on National Medical Legislation representing the American Medical Association, presented as a report the printed proceedings of the meeting, which were filed.

Dr. Bracken reported, as delegate to the American Congress on Tuberculosis, that he had been unable to attend the meeting.

The president stated that unless otherwise ordered the next meeting would be in Minneapolis as the constitution requires.

On motion of the secretary, Dr. C. L. Greene was appointed as delegate to the International Tuberculosis Congress in London in July.

The president then read his address.

Dr. Sweetser moved that a committee of five, of which the president should be a member, be appointed by the president to consider the recommendations in the president's address, and report at the next meeting.

Dr. D. B. Pritchard moved that the election of officers as made under the suspension of the article of the constitution be declared irregular. Carried.

After remarks by Dr. Hunter, the president, Dr. Sweetser, Dr. Andrews and Dr. A. W. Abbott, Dr. W. A. Hall and Dr. Wm. Davis were nominated for president.

Drs. Lynch and Allen were appointed tellers; total votes cast, 51, of which Dr. W. A. Hall received 38, and Dr. Wm. Davis 13. Dr. Hall was declared elected.

Dr. J. P. Humes, of Winnebago City, was elected first vice-president.

The chair appointed on motion as a committee on nominations of Chairmen of Sections, Drs. Bracken, Bell, Allen, Lynch, and Greene.

Dr. J. D. Simpson, of Minneapolis, was elected second vice-president; Dr. S. S. Reimstad, of Madelia, third vice-president; Dr. Thos. McDavitt, of St. Paul, secretary; and Dr. R. J. Hill, of Minneapolis, treasurer.

The committee on nominations reported as follows: Dr. J. W. Andrews, of Mankato, for chairman of the Section of Surgery; Dr. L. A. Nippert, of Minneapolis, for chairman of the Section of Practice of Medicine; Dr W. S. Fullerton, of Minnesota Lake, for chairman of the Section of Hygiene, Medical Education, and Public Medicine.

On motion the report was adopted.

Dr. R. J. Hill, treasurer, desired instructions in reference to delinquents on account of non-payment of

dues, as to whether such delinquents should be unceremoniously dropped at the end of the third year of non-payment, or reinstated on payment of all past dues. Do the by-laws mean that the three years allowed as delinquent are for all the years delinquent?

The president observed that the ruling was that dues ceased when members were dropped from the roll.

Dr. E. J. Abbott moved that the construction of the by-laws as held by the president be considered the ruling of the Society, and on vote the motion prevailed.

The treasurer requested the authority of the Society to equalize this matter with the different delinquents, so that he might return the excess of money over three years' dues which some had paid him.

Dr. E. J. Abbott moved that the treasurer be given that authority.

After some discussion by Drs. Barton, Hill, Bracken, the president, Drs. Allen and Andrews, Dr. Abbott's motion was put to vote, and carried unanimously.

On motion of Dr. J. H. Dunn the Society adjourned sine die.

PRESIDENT'S ADDRESS

1901

WILLIAM DAVIS, M. D.

St. Paul

THE ORGANIZATION OF THE PROFESSION

Organization is the watchword of the day. Capital is organizing into gigantic trusts and combinations that are controlling the output and the price of many articles of commonest use, indispensable to the community and consumed in enormous quantities. Labor is organizing in all its branches, from the most skillful mechanic down to the very newsboy, and the trades-unions are putting forth every effort to acquire sufficient strength to enable them successfully to oppose any combination of capital. Physicians will do well to profit by the example. If any one doubts the need of organization on the part of our profession let him talk with those of our legislative committee who fought last winter for the passage of our own bill and for the defeat of some of the pernicious medical legislation that was attempted. Let him learn how the mere mention that a bill is backed by the regular medical profession arouses the hostility of legislators ever ready to cry out that the doctor is trying only to make himself into a close corporation, to shut out others, in order that he may be free to prey upon the pockets of the community. Had the doctor behind him the whole body of medical men in the state, the whole 2,000, more or less, who doubts that the legislator would give him a more respectful hearing?

The presidents of the state medical societies have been asked this year to address the respective bodies over which they preside upon the subject of the organ-

ization of the medical profession. At the last meeting of the American Medical Association the following resolutions were adopted:

RESOLVED, That a committee be appointed by the Association on the organization of the profession throughout the United States to co-operate with the Committee on National Legislation; this committee to consist of one member from each state and territory represented in the Association.

RESOLVED, That a committee of three be appointed by the President to prepare plans in detail for such committee on organization, to enter into correspondence with the officers of the various state societies, and take such action in the premises as it may think advisable, and that the trustees be requested to appropriate a sum not exceeding $150 for the necessary expenses of the committee.

The report of the committee of three has been published, and will be considered this afternoon by the general committee on organization, made up of the retiring presidents of the state medical societies. The chief recommendation of the report is that the business of the Association shall be put into the hands of a newly created body to be known as the House of Delegates, made up of representatives from the state medical societies in the ratio of one delegate for each 500 members or fraction thereof, with the addition of one delegate-at-large from each state society, the delegate-at-large to be the retiring president. The retiring chairman of each of the sections of the Association will also be a delegate, and there will be one representative each from the U. S. Army, the Navy, and the Marine Hospital Service. The intention is to keep the apportionment such that the House of Delegates will be kept between 150 and 175 members. This body will be presided over by the president of the Association; it will elect the officers of the Association, but not from its own members; it will have the power of amending the constitution and by-laws, and will vote appropriations of money, but the finances of the Association will still be in the hands of the Trustees, and that Board must approve of all orders for the expenditure of money. This, in brief, is a description of the House of Delegates.

The report further recommends that each state society appoint at the earliest moment a committee on organization, to which shall be referred the report of the committee of the Association. It is urged that the state

societies unite in agreeing to federate themselves with the Association, and that for this purpose they adopt certain fundamental principles, to-wit: To divide their annual meetings into two branches, legislative and scientific, the legislative branch to be kept as small as possible and to be made up of delegates from the county societies; to provide that membership in the county or district societies shall constitute membership in the state societies, and that no one shall be admitted to the state society except through membership in a county or district society; to meet the expenses of the state society by assessment of the members of the county or district society; to try to limit the membership of the local societies to those who support the regular organization; to create a committee from each state society to enforce the medical laws in its territory; and, finally, to have each state society co-operate with the American Medical Association and with the other state societies in solving the great problems before the profession in relation to medical education, medical legislation, reciprocity, licensing, etc.

Arguments in favor of the proposed change are not far to seek. The present arrangement of delegates to the Association meetings in the proportion of one to ten has long been outgrown. At the last meeting over 1,600 delegates were registered, making a representative body in which roll-call is impossible, while in other methods of voting it cannot be told who are delegates and who are not. The present method is unfair, because those states near the place of meeting are naturally represented by an undue proportion of their delegates. Here in Minnesota, for instance, we are this year entitled to one hundred and forty-two delegates, most of whom will doubtless be present, while in meetings at a distance our state is rarely represented by more than fifteen or twenty delegates. Moreover, the present rule of making local societies auxiliary and allowing them delegates, gives an unfair advantage to those so situated as to be members of more than one society within the state. A member from Minneapolis, for instance, may belong to as many as five auxiliary societies, to-wit: the State Society, the Hennepin County Society, the Academy of Medicine, the Minneapolis Club, and the Minnesota Valley Medical Association. Since each of these

societies is entitled to send delegates to the Association in the proportion of one to ten, the Minneapolis man has five times the voting power of a member from the northern part of the state who is eligible for membership in the State Society alone. In selecting the small number of delegates allowed by the new plan it will be easy to find those who will agree to attend the meetings, and ensure to each state full representation each year.

The proposition to change the relations of our state and local societies according to the plan outlined in the report is one that must be carefully and deliberately considered. First and foremost, it is evident that in a state like ours membership in the State Society cannot be restricted to those who are members of local societies, for the obvious reason that in parts of the state there are counties, aye whole tiers of counties, so sparsely settled that county societies are at present impossible. The report attempts to get over this condition by the provision that in such counties medical men shall be taken into the societies of adjoining counties. But this defeats the chief object of the proposed change, which is that members shall be elected by their neighbors who know them personally. Take, for instance, Hubbard County, which in 1895 had four regular physicians; the largest number of regular physicians in any one of the adjoining counties in that year was but six, and the nearest county where a local society would be possible is so far away that its members would be little likely to know the Hubbard County man personally. The state must be better settled before we can insist upon membership of a local society as a prerequisite for membership of the State Society. Yet this Society has long recognized it as desirable that the local society should endorse applicants for membership here, and there is a provision in our constitution to that effect.

The plan of making the county society the unit is excellent in many respects. The British Medical Association is reorganizing upon a plan similar to the one proposed for our National Association. There the division is the unit, corresponding with our county society; then comes the Branch, holding the position of our State Society; and finally the National Association in

each body. The possibilities for combinations of the state societies into groups, holding a position like that of the Mississippi Valley Medical Association are left for future consideration.

The great thing is to organize the county or district society in every part of the state where it is possible. To do this the committee of the American Medical Association advises the employment of one or more paid organizers, preferably medical men, who shall make a personal canvass of the physicians of the state just as the political organizer canvasses the voter. It strikes the right note when it discourages appeals by letter or circular, and urges a personal canvass. The only way to persuade men is to take them by the buttonhole.

Time forbids me to go into all the advantages of the proposed change; to speak of its economy, its binding together of the profession, its increase of our power and influence in the community, its educational advantages, and the improvement in our scientific work. The advantage to our State Society in the way of increased membership is obvious. The exact membership of our local societies is nine hundred and twenty-two; by close union with them we could expect our State Society to jump to a membership of at least eight hundred, in itself no small gain.

I recommend that the consideration of the proposed change be left to a committee to canvass the matter thoroughly during the coming year, to communicate with the county societies and get expressions of opinion from them, and to report at the next meeting, the executive committee for the coming year being instructed to give this report a special place upon the program for the business meeting of the second day, choosing that time to insure a full attendance, to give time for discussion, and if desirable to allow postponement of the final vote until the third day, just before the election of officers, a time when the attendance at our meetings is usually largest.

Proceedings

OF THE

Thirty-fourth Annual Meeting

WEDNESDAY, JUNE 18, 1902

The thirty-fourth annual meeting of the Society was called to order by the president, Dr. William Asbury Hall, of Minneapolis, at 10 o'clock a. m., at the Unitarian Church, Minneapolis.

On motion the roll-call was dispensed with, as was also the reading of the minutes of the last annual meeting.

On motion of Dr. R. J. Hill, Dr. J. H. Stuart, Minneapolis, Dr. O. A. Fliesburg, North Branch, and Dr. Geo. M. Coon, St. Paul, were reinstated.

Dr. H. M. Bracken, delegate to the Committee on National Legislation, made his report, which was adopted and ordered filed.

Dr. A. W. Abbott, delegate to the House of Delegates of the American Medical Association, made his report, which was accepted and placed on file. The report follows.

REPORT OF MEMBER OF THE HOUSE OF DELEGATES

I have no extensive report to make.

In reference to the treatment of Dr. Sternberg, by Congress, a great deal of indignation was expressed, but nothing could be done further than to make a protest, and this was done.

In regard to a uniform examination in the different states, the matter was brought up and referred to a committee, but it seemed to me in the present plan there was nothing definite and nothing that could be practically carried out, and that seemed to be the feeling in the House.

Another point in reference to the new constitution, as far as

it relates to the Society itself, in having the constitution and by-laws revised by an attorney in Illinois, it was found that there was quite a number of material errors in the constitution as applied in incorporation under the state law of Illinois, and it was found necessary, for the present, at least, to hold an adjourned meeting in the state of Illinois to verify the action taken by the general association, so that each year, until some other arrangement is made, there will be an adjourned meeting, as there was this year at Chicago. I suppose the matter will be taken up, and disposed of as simply a formal matter.

In regard to the committee on conference, that was not decided at the time. It may have passed after Dr. Ritchie took my place at the meeting, but I have heard nothing from him since the meeting.

Action was taken, as suggested by Dr. Bracken, that the states should furnish their representatives to the conference.

A. W. Abbott, M. D.

The president announced the following committees:

COMMITTEE ON FINANCE

Dr. D. B. Pritchard, Chairman.
Dr. R. F. Lynch.
Dr. H. M. Workman.
Dr. L. A. Nippert.

COMMITTEE ON NOMINATIONS

Dr. J. E. Moore, Chairman.
Dr. Haldor Snévé.
Dr. H. Morrell.
Dr. E. Y. Chilton.
Dr. W. L. Beebe.

On motion the chair was instructed to appoint a committee of five, to whom applications of county societies be referred under the proposed re-organization scheme, said committee to report on Thursday morning.

The following committee was appointed by the president:

Dr. W. A. Jones, Chairman.
Dr. C. A. Stewart.
Dr. Burnside Foster.
Dr. F. H. Knickerbocker.
Dr. Walter Courtney.

Dr. H. B. Sweetser, chairman of the Executive Committee, submitted his report, which was accepted.

Dr. D. B. Pritchard, chairman of the Finance Committee, reported that the books of the treasurer had been examined, that the proper vouchers for expenditures were on hand, and the books were correct.

The treasurer, Dr. R. J. Hill, submitted his annual report as follows:

R. J. HILL, TREASURER, IN ACCOUNT WITH THE MINNESOTA STATE MEDICAL SOCIETY

RECEIPTS

June 3, 1901, amount on hand June 3, St. Paul meeting	$1,111.83
June 3, 1901, collected at annual meeting	102.00
July 5, 1901, to June 9, 1902, dues collected	1,156.00
	$2,369.83

DISBURSEMENTS

June 13, 1901, A. G. Long, stenographer	$19.45
June 18, 1901, G. W. Dysinger, int. returned	6.00
July 5, 1901, exchange (Hastings)	.20
July 12, 1901, G. W. Cunningham, envelopes cor. sec'y	15.00
Feb. 12, 1902, J. H. Adair, Owatonna, overcharge on delinquent dues, chk. $11.00, 1 receipt 2 yrs. dues $6.00	17.00
Feb. 14, 1902, H. M. Bracken, overcharge delinquent dues	3.00
Feb. 24, 1902, F. W. Bigelow, 500 receipts for treasurer, 5 books	5.50
Feb. 24, 1902, S. B. Lovejoy, 500 stamped envelopes for treasurer	10.60
Feb. 25, 1902, F. W. Bigelow, printing envelopes	1.50
March 4, 1902, F. W. Bigelow, 500 notice books due, 5 books	4.50
March 7, 1902, A. H. Goodrich, copying Constitutions and By-Laws	1.25
March 11, 1902, H. M. Workman, overpaid dues	3.00
March 24, 1902, J. W. Andrews, chairman Section on Surgery	9.50
April 22, 1902, G. W. Cunningham & Co., 250 stamped envelopes	6.50
April 1, 1902, G. W. Cunningham & Co., 500 circulars for Committee on Re-organization	6.00
May 14, 1902, Mildred Magin, typewriting for secretary	1.75
May 28, 1902, L. A. Nippert, chairman Section of Medicine	7.00
June 7, 1902, Thos. McDavitt, Secretary	100.00
June 7, 1902, R. J. Hill, Treasurer	100.00
June 4, 1902, F. W. Bigelow, 600 receipts for treasurer	6.00
	$323.75
June 9, 1902, Cash balance on hand	$2,046.08

Dr. Soren P. Rees extended an invitation to the members of the State Society to visit and make use of the Medical Library located in the Andrus Building.

Dr. J. W. Macdonald, chairman of the Committee on Necrology, submitted the following report:

REPORT OF THE COMMITTEE ON NECROLOGY

Mr. President and Members of the Society:

In the midst of our greetings of old friends, and our renewal of the acquaintances of former years, let us pause for a moment to pay a brief tribute to the memory of those who having finished their work are now numbered with the silent dead.

Your committee finds that since the last report on necrology, which was made in 1899, the following members have gone to their rest:

IN 1899

Dr. E. D. Abell, of Farmington.
Dr. George A. Hendricks, of Minneapolis.

IN 1901

Dr. J. M. Cole, of Winona.
Dr. Henry Cotton, of Minneapolis.
Dr. W. S. Smith, of St. Claire.
Dr. Frank A. Blackmer, of Albert Lea.
Dr. R. O. Cady, of Buffalo.

IN 1902

Dr. S. H. Reimstad, of Madelia.
Dr. Rollin E. Cutts, of Minneapolis.

It would be a grateful duty to write a biographical sketch of each of them, but in the short time at our disposal we have found it impossible to get the necessary data to do justice to their talents, or to show in a fitting manner their many virtues.

Some of them were wont to take an active part in the proceedings of the Society and their papers adorn the pages of our Transactions; others of a more retiring disposition may have been unheard in our gatherings, and yet they carried into their daily lives the principles which mark the true gentleman and model physician. Some were spared to round out a well-spent life, and leave behind them a completed task; others were called away when their work was little more than begun, and their brief but brilliant career was brought to a close just as we were beginning to recognize the splendid work of which they were capable.

Brothers in toil, farewell. In the bustle of this cold, ungrateful world your good deeds may be rapidly fading from the memory of those you left behind, but there is One who has remembered your acts of unselfish devotion, your weary watches by the couch of the suffering, your long journeys over the trackless prairies, your sleepless nights and anxious days, and has welcomed you with His "Well done, good and faithful servant, I was sick and ye visited me, I was naked and ye clothed me."

J. W. MACDONALD, M. D., Chairman.

On motion the full report was received, adopted, and ordered filed by a rising vote.

The report of the Committee on Revision of the

Constitution was postponed, on motion, until 9 a. m. Thursday.

On motion the Society adjourned until 9 a. m. Thursday, June 19.

THURSDAY, JUNE 19, 1902.

Meeting was called to order at 9:30 a. m. by Dr. W. A. Hall, president.

On motion Dr. O. J. Evans, Minneapolis, was reinstated to membership.

On motion Dr. Geo. W. Crile, of Cleveland, Ohio, who was present, was invited to participate in the deliberations.

The chairman of the committee appointed to revise the constitution so as to corform with the constitution of the American Medical Association read the report of said committee.

On motion the report was received and adopted, and the report ordered filed, the vote being unanimous. The following is the report:

REPORT OF THE COMMITTEE ON REORGANIZATION

Mr. President and Members of the State Medical Society:

Your committee on reorganization submits its report with a good deal of diffidence. The task set before it was to institute changes upon the merits of which the members of the Society are little likely to be all of one mind. Moreover, the problem of reorganization upon the lines laid down by the American Medical Association is one that must be solved to the satisfaction of the county societies, as well as of this body.

The committee was appointed to make such changes in the constitution and by-laws of this Society as should provide for its federation with the county societies. By federation it is understood that the county societies become integral parts of the State Society, holding somewhat the same relationship that subsists between the various states of the Union and the United States as a whole. To bring about this federation the committee offers to the Society the following resolutions:

RESOLVED, That article IV of the constitution be amended to read as follows:

ARTICLE IV

MEMBERSHIP

The active members of the Society shall be regular physicians, who shall hold the certificate of the State Board of Medical Examiners, or its legal equivalent, and shall be of good professional attainment and moral character.

The honorary members of the Society may be residents or non-residents of the state.

The list of honorary members shall be confined to such persons as have distinguished themselves in the field of scientific medicine.

The active members shall consist of all the active members of the Society at the time of the adoption of this revised constitution and of all the active members of all the county societies that shall vote to affiliate themselves with this Society.

Membership in a county society shall be necessary for membership in this Society, unless no society exists in the county where the applicant resides.

Physicians living in counties in which there is no county society in affiliation with this Society, may become members by filing with the secretary of this Society an application setting forth their qualifications, and endorsed by at least two active members of this Society. The names of such applicants shall be presented to the Society at each annual meeting and voted on at the meeting of the following year. Election shall be by written ballot, and a two-thirds vote shall be necessary to elect.

Resolved that Article VI of the constitution be amended to read as follows:

ARTICLE VI

COMMITTEES

The president shall annually appoint a Committee on Nomination consisting of one member from each congressional district in the state; an Executive Committee, a Committee on Finance, a Committee on Necrology, and a Committee on Publication, each consisting of five members.

Resolved that Article X of the constitution be amended to read as follows:

ARTICLE X

AUXILIARIES

The county societies already in affiliation with this Society may continue in affiliation by passing a vote accepting the provisions of this revised constitution. Any other county society desiring to affiliate with this Society, shall apply by submitting a copy of its constitution and by-laws to a committee consisting of the president, secretary, and treasurer of this Society. The said committee shall report their recommendation upon the application to this Society at its next annual meeting, when the county society may be admitted by a two-thirds vote of the members present at the meeting.

Resolved that No. 4 of the by-laws be amended to read as follows:

No. 4.—The treasurer shall receive all dues, and shall deposit the same in a bank or safe depository; he shall collect directly the dues of all members whose names are not on the rolls of the affiliated societies; he shall pay all bills; shall keep an account with the Society, and make a detailed report at each meeting; he shall notify members of delinquency in the payment of fees one month prior to each meeting.

He shall be entitled to draw an annual salary of one hundred dollars, and shall be required to furnish sureties in the sum of three thousand dollars, said sureties to be approved by the president and secretary of the Society.

Resolved that No. 8 of the by-laws shall read as follows:

No. 8.—The dues of those members of the Society, who are also members of an affiliated county society, shall be collected by the treasurers of the county societies. The dues of all active members shall be two dollars ($2.00) per annum, provided that when the active membership of this Society, not including the Roll of Honor, shall reach one thousand, the annual dues shall be one dollar ($1.00).

Resolved that No. 15 of the by-laws shall be amended to read as follows:

No. 15.—Every new member not admitted through a county society shall pay an initiation fee of three dollars ($3.00) and his annual dues, and shall sign the Constitution and By-laws. On or before the first day of January, of each year, the treasurers of the affiliated county societies shall turn into the treasury of this Society a list of those members who have paid their annual dues.

Any member who shall fail to pay his annual dues for a period of three years, after due notice from the treasurer, shall be dropped from the rolls, and shall be re-instated only by a two-thirds vote of the members present at any regular meeting, and on full payment of his past dues, up to the time when his name was dropped from the rolls.

Your committee further offers the following resolution:

RESOLVED, That the next president of this Society appoint a committee of one whose duty it shall be to look after the organization of county or district societies in those counties where there are at least ten regular physicians and no county society at present; and be it further

RESOLVED, That this committee be authorized to draw upon the treasurer for necessary expenses to the amount of three hundred dollars during the coming year.

A synopsis of these changes has been submitted to each of the county and district societies in the state in order to get from them an expression of opinion as to the merits of the affiliation plan. All of the societies which have been able to take action at all have expressed themselves as in favor of the new order of things. Hennepin, Ramsey, St. Louis, Winona, Olmsted, Steele, and Blue Earth County Societies, and Albert Lea and Crow River Valley District Societies have so voted. Jackson and Wabasha County Societies will not meet until a later date. The State Society is thus encouraged in advance to believe that the county societies are ready for the change.

A committee of the American Medical Association has formulated a constitution and by-laws which it recommends for adoption by the State Medical Societies of the country. No doubt many of the members of this Society have read this proposed constitution and by-laws, as published in the Journal of the Association and elsewhere. It is the opinion of your committee that this constitution and by-laws is not suitable for this

Society. It is a long document, loaded with irrelevant matter, and so cumbersome that it is difficult to find precise rules for the conduct of meetings. Moreover, it provides for the government of the state society by a house of delegates chosen by the county societies. This would give those members of this Society who are not members of county societies no voice in the government of this Society. Your committee carefully deliberated upon the question of governing this Society by delegates from the county societies, and decided that while this is a plan to be carried out in the future, when there are more county societies, it is not the best plan for the present. Our general meetings at the present time are not so large as to be unwieldy.

Experience has shown that no new constitution is likely to be perfect. When put into use defects appear that have to be remedied by later amendment. Your committee at least believes that it has outlined a plan by which this Society may safely enter upon the new relations with the county societies, and that the way is left open for any further changes that may become necessary in the future.

All of which is respectfully submitted.

WM. DAVIS, M. D., Chairman.
THOS. MCDAVITT, M. D.
CHAS. A. STEWART, M. D.
J. B. MCGAUGHEY, M. D.
W. A. HALL, M. D.
Committee.

The secretary read a communication from the secretary of the Commercial Club, Minneapolis, tendering the privileges of the Club to members of the State Society.

On motion the thanks of the society were tendered to the Commercial Club and its secretary for their courtesy.

Dr. J. W. Andrews moved a vote of thanks to the Twin City Telephone Company for courtesies extended. Referred to the Committee on Resolutions.

The Special Committee on Admission of County Societies reported the action of said committee, which was adopted, and ordered filed. The report was as follows:

REPORT OF COMMITTEE ON COUNTY SOCIETIES

Mr. President:

Your committee beg to submit the following report after hearing the representation of several district and county societies.

Dr. Wedge, the president of the Albert Lea District Medical Society, stated that the organization of this society was formed at Albert Lea several years ago, and to increase its membership and to advance its medical interests, the society

received applicants from adjoining counties in this state and from the adjoining counties in Iowa. The society has been recognized by the A. M. A.

The representative of the Blue Earth Valley Medical Society stated that this society was composed of medical men of Faribault and Martin counties and in that sense is a county society.

The committee recommend that the Albert Lea District Medical Society be reorganized, and that the Blue Earth Valley Medical Society be known as the Faribault-Martin County Medical Society to avoid confusion and error.

Your committee also recommend that counties lying near adjoining states be instructed to limit their active members to their own state, but if such state members apply, that they be received as associate members.

These changes can be ratified at any subsequent meeting without disorganization.

Reports were received from two societies in Blue Earth County. The older organization, formerly known as the Physicians' Club of Mankato, recently reorganized under the name of the Blue Earth County Medical Association. The younger society recently organized under the name of the Blue Earth County Medical Society.

The former association has a membership of twenty-six (26) licensed practitioners and residents of Blue Earth county. Fourteen are members of the Minnesota State Medical Society.

The younger society has a constitution signed by eighteen members of the State Society. The membership is composed of physicians in Blue Earth and adjacent counties.

We have canvassed the situation thoroughly, and recommend that the older and larger association be reorganized as the representative Society of Blue Earth county. We feel that we will do justice to the greater number of members of the State Society in Blue Earth county by this recommendation. We also take the liberty of advising the two societies to join their forces in the interests of harmony for both societies, and call their attention to the clause in the constitution that every reputable and legally registered physician who is practicing non-sectarian medicine shall be entitled to membership.

We recommend that a state organizer be elected or appointed by the president of the State Society, who shall promote and encourage county organization; or that, in an emergency, the president, secretary and treasurer of the State Society be empowered to permit the organization of county societies under proper restrictions.

W. A. JONES, M. D., Chairman.
C. A. STEWART, M. D.
BURNSIDE FOSTER, M. D.
F. H. KNICKERBOCKER, M. D.
WALTER COURTNEY, M. D.

The Society, on motion, adjourned to Friday morning at 10 o'clock.

FRIDAY, JUNE 20, 1902

Meeting called to order at 10:30 a. m. by the president, Dr. W. A. Hall.

The president introduced Rev. G. R. McDaniel (colored), president of the Ambidexter Institute, Springfield, Ill., who was given permission to address the Society for five minutes.

Dr. Wm. Davis submitted the following resolution:

RESOLVED, That the Committee on Legislation be instructed to endeavor to procure the passage of an amendment to the recent Medical Practice Act, authorizing the State Board of Medical Examiners to establish reciprocal recognition of license with other states whose requirements for license do not fall below the standard established by this state.

Adopted unanimously.

Dr. C. A. Kelsey offered the following resolution:

WHEREAS, The noblest part of the work of the physician is to protect the public from encroachment of disease, and

WHEREAS, It is a well known fact that the use of tobacco is injurious, especially when the habit is formed in youth, and

WHEREAS, Every father desires that his boys shall escape the evil injuries of the habit; therefore be it

RESOLVED, That we, the members composing the State Medical Society of Minnesota, object to being put on record as favoring the use of tobacco, and request that in the future the word "smoke" never be used in connection with our socials.

On motion the resolution was laid on the table.

Dr. W. A. Jones asked unanimous consent to change the reading of by-law No. 15 from "on or before the first day of May" to "on or before the first day of January" so that the secretary of the American Medical Association may have the membership reported to him by the latter date.

The motion prevailed unanimously.

On motion Dr. Geo. W. Crile, of Cleveland, Ohio, was made an honorary member, and a vote of thanks extended to him for his able and instructive paper read before the Society.

The secretary announced the following applications for membership:

Dr. W. H. Cook, Minneapolis.

Dr. G. A. Stevenson, Albert Lea.

Dr. D. F. Wood, Hanska.

Dr. S. J. Wooster, Annandale.
Dr. J. J. Langford, Green Isle.
Dr. F. J. Bomberger, Mapleton.
Dr. C. J. Beise, Mapleton.
Dr. Lida Osbon, Dr. L. F. Schmauss, Mankato.
Dr. Marion A. Mead, Dr. George W. Moore, Dr. Lester W. Day, Minneapolis.

The president announced that, under the rules, these applications for membership would lie over for action until the next annual meeting.

Dr. J. E. Moore, chairman of Nominating Committee for chairmen of Sections reported as follows:

Dr. C. L. Greene, St. Paul, Section of Medicine.
Dr. H. B. Sweetser, Minneapolis, Section of Surgery.
Dr. A. C. Rogers, Faribault, Section of Hygiene, Education, and Public Health.

Report received and adopted.

ELECTION OF OFFICERS

Dr. A. C. Wedge nominated Dr. J. W. Andrews for president for the ensuing year. This was seconded by Drs. J. H. Dunn and E. D. Steele.

Dr. J. W. Bell nominated Dr. H. A. Tomlinson. This was seconded by Drs. Arthur Sweeney and C. O. Cooley.

The ballots gave 54 votes for Dr. J. W. Andrews and 47 votes for Dr. H. A. Tomlinson. Dr. J. W. Andrews was declared elected president for the ensuing year.

Drs. E. Y. Chilton and N. K. Whittemore were nominated for first vice-president. Ballot: Dr. Chilton 41, Dr. Whittemore 50.

Dr. N. K. Whittemore, Elk River, was elected first vice-president.

Dr. Cornelius Williams and Dr. Mary S. Whetstone were nominated for second vice-president. Ballot: Dr. Whetstone, 45, Dr. Williams 28.

Dr. Mary S. Whetstone, of Minneapolis, was declared elected second vice-president.

The secretary was instructed to cast the ballot of the Society for Dr. Florence C. Baier, of Minneapolis, for third vice-president.

The president was instructed to cast the ballot of the Society for Dr. Thos. McDavitt, of St. Paul, for secretary.

The secretary was instructed to cast the ballot of the Society for Dr. R. J. Hill, of Minneapolis, for treasurer.

Dr. Wm. Davis and Dr. W. A. Hall were elected censors for three years; Dr. F. A. Dunsmoor and Dr. Walter Courtney for two years; Dr. A. W. Abbott and Dr. A. C. Wedge for one year.

Dr. Wm. Davis, of St. Paul, was elected a member of the House of Delegates of the American Medical Association for two years.

Dr. A. W. Abbott, of Minneapolis, was elected a member of the House of Delegates of the American Medical Association for one year.

On motion the Society adjourned to meet in St. Paul on the third Wednesday in June, 1903.

PRESIDENT'S ADDRESS

1902

WILLIAM ASBURY HALL, M. D.

Minneapolis

ORGANIZATION OF THE MEDICAL PROFESSION: ITS AIMS AND BENEFITS

Members of the Minnesota State Medical Society:—

I wish to return my sincere thanks to your honorable body for conferring upon me the greatest honor in the gift of the medical profession of this state, that of electing me your president. As a token of confidence and respect it is most highly valued, and I shall endeavor to discharge the duties incumbent upon me in such a manner as to win your approval.

The medical societies of to-day are unquestionably the most powerful factors in the uplifting of the profession. They are organized and maintained "with the view to the extension of medical knowledge and to the advancement of medical science; to the elevation of the standard of medical education, and to the enactment and enforcement of just medical laws; to the promotion of friendly intercourse among physicians, and to the guarding and fostering of their material interests; and to the enlightenment and direction of public opinion in regard to the great problems of state medicine; so that the profession shall become more capable and honorable within itself, and more useful to the public in the prevention and cure of disease, and in prolonging and adding comfort to life."

Let us take a brief survey of the situation as it exists in the profession to-day, and while we take great com-

fort in viewing our own accomplishments, let us also take cognizance of existing evils, and endeavor to correct them. We know what the surgeon's knife skillfully wielded is able to do for suffering physical humanity, and let us endeavor to apply the same remedy to the body politic of the medical profession.

Probably one of the most serious evils of the medical profession of this country to-day comes from a lack of uniform laws regulating and prescribing the necessary qualifications to enter upon the practice of medicine in the various states of the Union. Some states have good laws, and hardly any two have the same laws. So diverse are these laws that they frequently work a great hardship upon the profession. It is a great question in my mind whether all the medical laws that have ever been enacted have not done more harm to the profession than they have done good. The public have come to look upon all attempts to secure medical legislation as an effort to establish a sort of trades-unionism, and not as an effort to protect the health of the people.

At the time when I graduated in medicine there were no laws regulating the practice of medicine, except that the physician must either be a graduate of a medical college or a licentiate of a county medical society, and both classes had an equal standing. At that time the physician who did not belong to the medical society in the county in which he resided was looked upon with suspicion and reproach. Subsequent medical legislation legalized irregular medicine, and gave it a standing that it never before had. But the evil has already been accomplished, and, in my opinion, can be remedied only in one way, and that is by the enactment of a uniform medical law that shall be operative in all the states of the Union. This can be brought about only by the united efforts of the medical profession as a whole. It is not too much to predict that, under the present plan of organization of the American Medical Association, in less than five years its membership will embrace more than three-fourths of the physicians of the United States.

It is an absolute impossibility to establish a uniform standard for the various medical colleges in this country. These colleges will go on, in the future as in the past, granting the degree of doctor of medicine, for they have a legal right to do so. But when it shall come to pass

that before a doctor of medicine can begin the practice of his profession he must pass an examination conforming to a standard fixed by the American Medical Association, and this examination shall be conducted by official representatives of said association who shall not be connected with any medical college; and having successfully passed such examination he shall become a licentiate of the American Medical Association, and shall be entitled to practice in any state of the Union—then all sectarian medicine, all "isms," and all "pathies" will vanish into thin air, and the educational standard alone will commend itself to the public.

While therapeutics is the aim and end of all medical knowledge, yet a thorough familiarity with the branches of medical science upon which therapeutics should be founded, but is not altogether at present, is absolutely destructive of medical sectarianism. Given that thorough knowledge as a basis, there will be no greater diversity of opinion as to what constitutes proper medical treatment than exists to-day betwen the several members of the different so-called schools of medicine. I expect to see the day when the American Medical Association will embrace all of the educated, honest and honorable persons engaged in practicing the science and art of medicine.

Another great evil that has become rampant in the profession during the past few years is the spirit of commercialism. This spirit has crowded the ranks of the specialists in medical science with a class of men totally unfit to practice any specialty. Young men fresh from college are taking up specialties, and by their manner arrogating to themselves superior knowledge, which they do not possess; and they are demanding from the public excessive fees for their work. The spirit of commercialism is predominant among them, and they are trying to delude the public. They may succeed for a time, but the public is certain to find them out; and when they are found out the entire medical profession suffers a lack of confidence as a result. True specialism perhaps suffers more from this cause than the profession in general. Special adaptability for certain lines of work can only be ascertained after long years in the general practice of medicine, which has given the practitioner experience, and given him a width of vision sufficient to enable

him to draw logical conclusions. Our great surgeons, our great gynecologists, our great masters in internal medicine, are, without exception, men of this class. They are men who have worked up to their specialty through years of hard labor, and are not young men fresh from college, nor are they men who have failed in the general practice of medicine from lack of knowledge, and who, recognizing that failure, have undertaken, in a spirit of commercialism, that for which they are not fitted and never will be. These are the men who are bringing discredit upon the profession by trying to corrupt the morals of younger members by offering bribes in the way of commissions for sending them cases. This feature of the spirit of commercialism is, in my opinion, a very serious one, for I believe that many a valuable life has been lost, when had it not been for the desire of the practitioner to reap a fee to which he was not entitled and which he would not have his patient know that he received, the patient would have been sent to the man of riper experience, of greater knowledge and skill, one entitled to rank as a true specialist in medicine and surgery.

I feel free to say this, for I am not a specialist but an humble worker among the great army of general practioners of medicine and surgery. I believe the medical profession is entitled to greater fees than it is now receiving for its work. It is a notorious fact that the majority of the most successful physicians and surgeons, the men who by their lives and devotion to duty and the men who have been of the greatest good to the communities in which they lived, have died poor men. This is true largely by reason of the lack of business methods shown in failure to collect their just dues. The physician and his family frequently suffer for the necessities of life while his debtor and his family are living in luxury. "The laborer is worthy of his hire," and is entitled to exact it, and he should do so, but let it be for work honestly done.

Another crying evil in the medical profession as it exists in the larger cities at the present time, is the fact that so many men lend themselves to the free dispensaries for the so-called poor. It is well known that the large majority of the patients frequenting the free dispensaries are people who are abundantly able to pay small fees. These people are legitimately the patients of the

younger men who are starting out in the practice of medicine, and it is rank injustice for the older and well established men to treat these people for nothing, thus not only taking the bread from the mouths of the younger practitioners, but pauperizing the patients as well. A free dispensary in every city is a necessity, but let it always be under direction of the public poor-department which will certify that the applicant for its benefits is entitled to its services. This need not interfere in the least with the procuring of clinical material for the use of medical colleges, for the dispensary staffs could and should be composed of the clinical teachers in the colleges. Benevolent societies and hospitals under lay management, seeing how eager the medical profession is to do charity work, place the same value upon the physician's services as he himself seems to place, and as a result physicians do not have the weight in the management of hospitals to which they are entitled; and for this state of affairs physicians are themselves to blame.

When the medical profession learns to place the same value upon its services that the legal profession places upon its service, then it will be entitled to, and will command greater respect from the public.

These are some of the most flagrant evils that exist to-day in the medical profession—evils that the profession is itself responsible for, and evils that the profession can correct through its societies.

The question of ethics has, I believe, been permanently settled, at least for a long time to come. In 1884 a minority of the Medical Society of the State of New York by a preconcerted movement packed the convention, and changed its constitution and by-laws in such a manner as to renounce allegiance to the code of ethics of the American Medical Association. The result was the immediate formation of the New York State Medical Association with a membership three times that of the old society. This society has been in most successful operation for the past eighteen years. One by one the seceding members of the old society have come back into the fold of the American Medical Association, and recently at the last meeting of the old New York State Medical Society it passed, without opposition, a resolution that its president appoint a committee to confer with the New York State Medical Association with a view to consoli-

dating the two societies upon a basis of allegiance to the code of ethics of the American Medical Association. The code of ethics of the American Medical Association is, in my opinion, a grand exposition of the principles of upright professional character, and it has been shown that those who oppose it are those who have never read it, or those who are governed by the spirit of commercialism. The spirit of commercialism caused the old New York State Medical Society to renounce it, and after a trial of eighteen years they have found that their action did not pay.

It is with the greatest satisfaction that I can state that during the progress of the last meeting of the American Medical Association at Saratoga there was a conference between the representatives of these two societies. As a result an agreement was reached whereby the unfortunate differences are to be healed, and before the next meeting of the American Medical Association is held at New Orleans, harmony and unity in the New York profession will be an accomplished fact. The conference demonstrated that the differences were not so great or vital as had been imagined, and also that where men get together in a spirit of unselfishness and with a desire for unity, it is not difficult to agree upon a basis that will leave no heartburnings.

The fact of the dissemination of medical knowledge through the offices of the medical societies is obvious, and need not be dwelt upon at length. The carefully prepared papers, and especially the discussion of the same, make an impression upon and educate the profession at large in a manner not obtainable by other means; but the greatest good to be accomplished by medical societies is yet to be mentioned, and that is the cultivation of the spirit of good fellowship. Good fellowship is the strong lever that moves the world, and all the powers of darkness cannot prevail against it. The spirit of good fellowship brings out the best that is in every man. The spirit of good fellowship is the means of the greatest successes in all lines of business, and is the one prime factor in keeping the peace of nations. The profession of medicine is one that is peculiar, inasmuch as its practice does not require as a rule close association of its members, and therefore, as a result, physicians do not find out each other's good qualities, so that we see bickerings and jealousies cropping out that would not exist were the

members brought into more intimate contact. This can only be done in our profession by means of our medical societies. The lack of such personal contact is responsible for there not being more county medical societies in existence in the state of Minnesota than there are at present. The members of the profession have not recognized the great good to be derived from association and the cultivation of this same spirit of good fellowship. A united profession is always a strong profession, and always commands the respect of the public. The American Medical Association in its plan of reorganization adopted at its annual meeting at St. Paul last year, bids fair to solve this problem. By its plan no physician can become a member of either the state or national association unless he is a member in good standing of his county medical society. He must be vouched for by his county society, which is to be the unit of all societies. The affairs of the American Medical Association will henceforth be conducted by the official representatives of the state societies, and the county societies will dictate who shall become members of the state societies.

It has been my pleasure to attend the last meeting of the American Medical Association held recently at Saratoga Springs, N. Y., and it was extremely gratifying to note the large and representative delegation present from Minnesota. The different sections were well attended, and the meeting was devoid of the usual feature of medical politics. The House of Delegates was in almost continuous session, and did its work well. The members of the House of Delegates consulted freely upon important matters with the delegations whom they represented, and it was the unanimous verdict that the plan of organization of the association was a great success. The address of the president, Dr. Wyeth, was a masterly effort, and will repay a most careful perusal. Some of its closing passages are so apropos that I will briefly quote them. He said:

"Let us ask ourselves plainly: Is the medical profession of the United States what it should be? Has it won the influential position to which it should aspire? Has it gained the power to secure just and proper legislation? Has it lived up to its obligations, and has the American Medical Association, which claims to represent one hundred and twenty thousand regular practitioners of medi-

cine in the United States, fulfilled its mission? How many of us after due reflection can consistently answer these questions other than by saying plainly and regretfully, No. And wherein lies our weakness? To say we are part of a young and scarcely organized country, and that our profession is widely dispersed over vast regions so remote from each other that contact and co-operation are difficult, will not entirely satisfy the fairly critical mind. Such excuses might have been sufficient at an earlier date, but not now. To say that, despite these and other embarrassments, we of the United States have given to mankind the unequal boon of ether anesthesia; that, through the achievements of members of our profession and of this Association medical and surgical science has been greatly enriched; that great specialties recognized the world over have been developed; that operations, bold and original, have been established beyond controversy; and that by reason of these various contributions to the science and art of surgery and of medicine, millions of lives have been already saved, together with the merciful mitigation of suffering which all this implies. While a repetition of this may flatter our vanity, it will not wholly satisfy us when in honest purpose we realize how great are our shortcomings.

"It is a fact, painful to acknowledge, that of the three so-called learned professions—the ministry, law, and medicine—ours is accorded the inferior position, and we who, day in and day out, in every home of the land are close in the personal friendship of our patients, and are respected and loved as individuals, are incapable of wielding by organization and discipline the powerful influence of a united profession aiming at a high and honorable purpose. And what have been the results of this house divided against itself? Witness the snail-like progress which marked the various steps in securing our laws for elevating the standard of requirements in medical education and for medical practice; witness the opposition to our efforts in securing better sanitary regulations, and in the struggle to protect the public from the horde of uneducated or misguided persons who, under the guise of Christian Science, Osteopathy, and other schisms, insist upon being permitted to take charge of and treat human beings suffering from disease without submitting themselves to the state examination legally required of us.

"There are, in my opinion, two principal causes of this evident weakness of the profession: first, the insufficient methods of medical education which have prevailed for the greater part of the first century of our national existence; second, the lack of organization.

"The code of this Association says: 'Those admitted into our ranks should found their expectations of practice upon the extent of their qualifications.' We stand committed as the champion of higher medical education and the elevation of the standard of requirements applicable, not only to the entrance examination, but to a rigid examination before the degree is received, as well as by the state before permission to practice is granted. To this rigid examination this Association, by its rules of conduct demands another important essential. The highest order of learning, the greatest amount of skill may not make one an honor to our calling; for 'there is no profession from the members of which a greater purity of character and a higher standard of moral excellence are required than the medical, and to attain such eminence is a duty every physician owes alike to his patients and his profession.'

"The American Medical Association is the sponsor for organized medicine in the United States, and failure of this Association to accomplish this end implies the failure of the Association. We must not fail, nor will we fail unless we falter in carrying out the plan of reorganization in the liberal and progressive spirit which characterized the session of 1901. It is our plain duty to endeavor to bring about the adoption by the various constituent bodies of a practically uniform constitution and by-laws for each county and for each state, modified only as the local conditions may require, and all governed by the same rules of conduct."

And now, in conclusion, let me urge upon this Society a favorable consideration of the report of the committee on reorganization that is to be presented at this meeting. This committee has worked faithfully in preparing for this Society, a constitution and by-laws that will bring its workings in harmony with the requirements of the American Medical Association. Undoubtedly, in a few years it will require amendments to meet changed conditions; but it has seemed to the committee that its recommendations extend as far as practicable at the present time. When

the county medical societies of this state are thoroughly organized this Society will have a roster of fifteen hundred members, which will necessitate some changes in the manner of conducting the Society, and those changes can be made at the proper time. When that time comes the membership of the American Medical Association will be at least one hundred and twenty-five thousand, and the profession of this great country will be organized in such a manner as to be effective in wiping out abuses and in procuring such legislation as is necessary.

Then the spirit of good fellowship will prevail, and all the other ends for which medical societies are organized will be attained.

Section of Medicine

L. A. NIPPERT, M. D., CHAIRMAN

INSPECTION AS A FACTOR IN THE PHYSICAL EXAMINATION OF DISEASES OF THE CHEST

L. A. NIPPERT, M. D.
Minneapolis

Mr. President, Ladies and Gentlemen of the Society:

Distinction not solicited, and bestowed by members of any profession upon one of their number, is an honor indeed. While not entailing great responsibility, the office of Chairman of the Medical Section of this Society has its share of duties, the performance of which is necessary to insure success to our meetings.

I appreciate and thank you for this honor, and I would ask you, by ready response to the discussion of the papers to be presented, to make the work of this Section of interest and mutual benefit.

Since I began the preparation of this paper I have been gratified to receive many applications of members desirous to read essays of importance before this Section, necessitating a strict keeping within the time limit prescribed by the by-laws.

The subject of "Physical Diagnosis," even in its restricted application to examination of the chest, is so extensive that but a meagre outline would consume much more than the allotted time. I shall, therefore, confine my paper to the discussion of inspection only, and change its title to "Inspection as a Factor in the Physical Examination of Diseases of the Chest."

The instructive and scientific address of my predeces-

sor, as Chairman of the Medical Section of this Society, Dr. Geo. D. Head, ends with Gerhard's motto: "Ohne Diagnose keine vernünftige Therapie" (Without Diagnosis no rational Therapeutics).

In the field of diagnosis in general, the physical examination of the chest requires probably more care, time, and experience than that of any other portion of the body. Obscure pathological conditions of the pelvis and abdomen are elucidated by an exploratory laparotomy. Opening of the thorax for diagnosis alone has as yet not been advocated by the surgeon. Radioscopy, which may in the future simplify the examination of the thoracic organs to inspection alone, is in its infancy. At the present date the internist is still compelled to rely on external signs for diagnosis of internal disease of the chest. These signs he perceives by aid of the eye, the touch, and the ear, hence the divisions into inspection, palpation and auscultation, percussion being a combination of the latter two. For satisfactory inspection the first condition is absolute bareness of the chest.

"Little Billy" would never have immortalized Trilby's foot had he only seen and drawn it when covered with a stocking. What is a necessity to art is in this instance an uncompromising requisite for scientific investigation. To have the upper part of a young girl's chest covered by an undergarment while inspecting the lower portion of the thorax or *vice versa,* is neither modest nor scientific. As well omit inspection altogether.

The patient stripped to the hip sitting or, if practicable, standing, should face the light, daylight being preferable, with no sidelights to throw counter shadows.

In succession we observe:

1. The general outlines of the thorax, including size, developments, malformations, abnormal distentions and depressions or projections.

2. The state of nutrition, muscular development, and the skin.

3. The respiratory movements,—their rhythm, rapidity and capacity.

4. Pulsation of heart and vessels.

I shall not take time to enumerate the varieties of development and malformations, but would draw your attention to two of especial importance: the long, flat chest with short antero-posterior diameter and little ex-

pansive capacity as suggestive of a disposition to pulmonary vulnerability; and the rachitic chest with its projecting sternum, its beady costal articulations and flaring lower ribs. Seeing this condition in an infant suffering from whooping-cough will warn you to give a guarded prognosis.

1. The thorax of an adult resembling in outlines that of a child is one of the best evidences of emphysema. Remembering the normal prominence of the precordial region in a large number of individuals, especially in children, unilateral bulgings, with or without obliteration of the intercostal spaces, point to effusions or tumors within the cavity. Localized depressions, frequently intensified in appearance by compensatory emphysema of other portions of the thorax, are evidence of shrinkage of the lungs, the effect of long-continued compression or fibrous changes and contraction of their structure, or of loss of substance from gangrene, abscess, or tubercular destruction. Abnormal projections not due to malformation, may result from tumors of the different layers of the chest-wall or from growths having their origin within. These are usually malignant in character or are aneurisms.

2. The state of the general nutrition of the thorax is apparent on inspection. The color, elasticity, smoothness and dryness of the skin are noted. The dry, glistening, pearly skin of the patient suffering from tuberculosis, is in strong contrast with the soggy, mottled appearance of the integument found in failing heart compensation.

Eruptions and scars are readily noticed when looked for. The former have usually no direct bearing on the condition of the organs of the chest.

The Norwegian or German farmer who has given a previous history of perfect health is mystified and impressed when you tell him that years ago he has had some trouble in the side which is the seat of his present complaint. He then remembers that he had pleurisy in his childhood. You have simply seen the evidence of treatment in the linear scars left by the scarificator or the round marks of acupuncture and croton oil. The artisan wonders how you know that he is left-handed before he has told you so; the hod-carrier does not understand how you can read his occupation from the appearance of his chest. Inspection has shown you in the one the greater

development of the left pectoral muscle, and in the other the acquired elevation of the carrying shoulder.

Excessive development of the intercostals, and digitations of the serratus and of other accessory respiratory muscles, are evidences of long-continued dyspnea most pronounced in asthma and emphysema.

3. Unless the patient is asleep, the rhythm and rapidity of respiration are usually at first disturbed by nervousness, induced by the examination.

Labored and prolonged inspiration is readily detected in cases of obstruction of the larynx and trachea or of spasm of the bronchial tubes. The latter condition and emphysema are the only factors in prolonged active expiration.

The drawing-in of the intercostal spaces and epigastric angle shows serious interference with the entrance of air into the lungs, and is, in acute laryngeal or tracheal disease or injury, an indication for immediate relief by surgical means.

Interrupted inspiration is noticed in nervous individuals or in children after a crying spell. It is also observed in interference to the entrance of the air-current from beginning tubercular infiltration. An important and early sign of this disease is a lagging of the affected side, the expansion of which appears to be slower and less full than the corresponding region. It is well to remember that, normally, the right side does not expand quite as freely as the left.

Inspection is of minor value in determining the capacity of the chest, which is much more accurately ascertained by other measures, although an experienced eye can fairly judge the amount of expansion on deep inspiration and expiration.

4. In persons not too fat, the apex beat is usually quite perceptible, and will be noticed to change with change of posture,—upwards and inwards in recumbency, and outwards if the patient turns on his left side. Failure to move with position either indicates adhesions or fixations by effusions or growths.

Diffuseness of the heart's impulse occurs on hypertrophy due to valvular disease or renal affection and is most marked in Graves' disease, and less so in simple hypertrophy. An abnormal bulging of the precordial region accompanies cardiac enlargement of long standing

or effusions into the pericardium. In thin persons the filling of the left auricle may be seen as a systolic impulse in the second left interspace near the sternum.

Dilatation of the heart or its exposure by retraction of the lungs in chlorosis or by contraction of these organs in fibroid phthisis, causes its wave-like pulsations to be visible.

The impulse of a dilated aorta from atheroma or aortic regurgitation can be seen in the suprasternal notch. Prominence and tortuosity of the muscular and cutaneous arterioles of the thorax are but a part of the general enlargement of the arterial system in insufficiency of the aortic valve. The positive (systolic) pulsation of the jugular in tricuspid regurgitation is ascertained solely by inspection, and this method may be the only means to detect slight abnormal pulsations from aneurism. An important early sign of mediastinal tumor is the engorgement of veins over the sternum.

Retraction of the intercostal spaces over the precordium during systole, is given as a feature of adherent pericardium, but is commonly observed in dilatation of the heart as a result of the negative pressure created by the emptying of the enlarged ventricles.

Inspection would not be complete without attention to the posterior part of the thorax to ascertain the condition of the spine.

Finally, the patient is placed in the recumbent position with his feet towards the window, and the thorax scrutinized again. In this position alone the pealing of the diaphragm from the lower ribs (Litten's sign) can be satisfactorily demonstrated. Its absence means incomplete action of the diaphragm through lack of expansion of the lungs or from paralysis, pressure of effusions or growths, or its fixation by adhesions. The undulating shadows of abnormal pulsations, obscure while the individual is standing or sitting, may show clearly in recumbency.

I am aware that this essay is of an elementary character and presents nothing new, yet the frequency with which I have observed so-called physical examinations to be limited to percussion and auscultation, omitting inspection and the equally important factor of palpation, has induced me to endeavor to point out to you the amount of diagnostic information obtainable by this method, and

to use the words of Vierordt, "I have taken pains to emphasize the fact that, besides availing ourselves of the constantly increasing finer methods of diagnosis, the simple use of our senses, especially the unaided eye, must not be forgotten."

If I have succeeded in impressing this necessity upon you, the object of this paper has been fulfilled.

THE CHARACTER AND TENDENCY OF OUR CURRENT MEDICAL LITERATURE, WITH NOTES ON ITS DEVELOPMENT, PROGRESS AND INFLUENCE

FRANKLIN STAPLES, M. D.
Winona

THE LITERATURE.—It is true of medicine, as of other departments of science and art, that its literature at any time may be considered as fairly representing the profession, its educational status and practice. The profession, by this means, may look through its work to itself. As to the present facilities for observation and study, it may be said that, while our current medical literature has become immense in quantity and vast in the extent of its distribution, the ready means of access to it in its entirety, was never so great as at the present time. While all leading journals of the country have their worthy parts in the literature of the time, a feature of the work of the Journal of the American Medical Association has its especial value in this direction. The Journal publishes weekly a comprehensive list of titles and many abstracts of journal articles, not only from all parts of this country, but largely from the current literature of foreign countries as well. Other medical journals have, to some extent, done similar work, and all appear to co-operate with the Association Journal in this important part of its work. From what is thus given in the way of current literature, it is not difficult at any time to observe what may be the general character and value, to take account of stock, as it

were, and to determine to some extent what may be the general tendency of the medical literature of the time.

An outlook.—For the present survey, we have the collection of titles, abstracts, and reviews for a month of the present year. Of these, limited to the journal productions of this country for the month, or to what was gathered from the same, the number is nearly eight hundred. What this represents would make no small volume of itself. Add to this the number of journal articles published in full, together with the foreign selections for the same time, and we have, indeed, the material for a full encyclopedia; this from a single month's literature. To show something of the character of the whole, an examination of the limited number is sufficient. The result of this examination, somewhat carefully made, may be given in short as follows:

In a very large percentage of the publications, we find for the groundwork of instruction, or as an essential element therein, the pathology involved in the cases or conditions described. In a large proportion the etiology of disease, as now known, is made the essential feature. The study of tuberculosis in its various manifestations, its etiology, pathology, and management, has its share of attention. Infectious diseases in general have their place in the literature representing the present advanced knowledge concerning them. In this class, especially, the later more complete knowledge concerning the part of the specific germ in the etiology and pathology of the several diseases, gives increased interest, because of the greater certainty as to what may be realized by proper management, both for relief and prevention. Of late the general prevalence of smallpox in the country has had the effect to increase the current literature on this disease, especially on its prevention by means of vaccination and isola- [illegible] In what concerns the former, we are made to un- [illegible] anew the meaning of immunity to the infection [illegible] the what, the how, and the why of it. The [illegible] so called, has come to have a [illegible] of the present time. Mod- [illegible] of bacteriology, as re- [illegible] atly enlarged and im- [illegible] rk and clinical in- [illegible] d the medical press, [illegible] has been the great

means of extending the practical knowledge of such advancements to the profession at large.

The few facts here noticed concerning the influence of the medical press upon the character and progress of modern medicine, may serve to some extent as illustrative —by no means as a general account. The small part may show the greater whole.

Concerning the direction and rate of advancement, observation has shown conclusively as follows: 1. In all the greater essentials, progress in medicine, especially during the later past and at the present time, has been and now is decidedly away from what belongs wholly or largely to mere theory for its basis, and has inclined well to the more substantial realism in all things. 2. In its rate of advancement, it has not failed to keep pace with the natural sciences in general, even with such as have in these later times shown the greater rapidity of growth.

BEGINNERS AND BEGINNINGS.—While we may, with good reason, enjoy the present outlook in medicine, its present character and promised future, we do well to look to the sources of our possessions. The history of beginnings and early developments may afford practical instruction, and may show good reasons for regarding as especially worthy certain early workers and their works.

The eighteenth century has been designated as the period of systems and theories in medicine, and of medical delusions; but this is not the whole truth even for that time. The teachings of such men as Sydenham, of England, and, a little later, of Boerhaave, of Holland, whose works began in the seventeenth century, served to turn the minds of men away from the theories and notions of their times. Their influence was felt in the eighteenth century and has continued. In the same direction and of the same lasting quality were the works of Bichat, of France, who was called the founder of general anatomy; of Pinel and Scarpa, of Italy; of Gimbernat, of Spain; Petit, Chopart, and Desault, of France; and of others of their time, some of whose names have come to us on anatomical parts first described by them, and others in connection with operations and treatments in surgery first made known by them. In this connection may be mentioned the name of the distinguished German teacher of the nineteenth century, Rudolph Virchow, of Berlin, who has been rightly styled the "Father of Cellular Path-

ology." The instruction and influence of men of this class inclined towards that realism in medicine, the greater development of which occurred in the latter part of the nineteenth century, and is in further progress at the present time. In the latter modern period, discoveries and developments, largely in collateral sciences, have been the aids, the stepping-stones in the highway of medical progress. Steps and stages have marked the way; and, while in early times much time was required for true advancement, in more recent years, with the means available, the rapidity of the higher growth has been most wonderful.

FROM APPARENT TO ACTUAL.—With partial or imperfect means for determining, what appears, on the surface, to be, may be real, or partly so, or wholly in error. Demonstrative diagnosis could hardly be made the rule, when apparent or external symptoms were the only or the principal guides; and errors with the best of men were not unknown, both as to the character and the etiology of disease. To illustrate: A well-written editorial in an eastern medical journal was intended to show that the etiology of the following named diseases, viz., intermittent, remittent, typhus, typhoid, and yellow fevers, is one and the same thing; and that apparent differences in manifestation are from the effects of different local or climatic conditions under which they occur. This writing was shortly after the middle of the last century. The writer was a competent observer, and in his practice north and south had had some experience with the diseases mentioned; but the time was before certain advances in science had clearly shown the part performed by the specific germ in the etiology and character of many diseases—these among the rest. The same author, writing now, would be likely to leave unsaid the part of his discourse relating to the identity of the diseases in question. We now have the means, and have learned the ways, of getting nearer to the true causes of many diseases than was formerly practicable.

It would now appear to be in order that, for certain diseases, the etiology and pathology of which have come to be well understood, changes in nomenclature should be made. Take, for instance, the designation "typhoid fever." The term *fever* really relates to an attendant condition or outward manifestation, rather than to the es-

sential disease element itself. The term *typhoid,* like typhus, the latter meaning a condition of asthenia or of "stupor," was applied to the disease because of symptoms which were thought to indicate a condition. The change of the name to "enteric fever" was, in a way, an approach to what would appear to be a suggestion concerning the pathology, in that in indicates a locality in the body, where is often found a resulting anatomical lesion. It is now thought of this disease, as of others, that the adoption of a name that would more clearly indicate its pathological character would be an improvement.

THE NEW EXPLAINS THE WORTHY OLD.—The question as to the how, as well as of the why, of many advances in practical medicine, is not without interest or practical importance. Certain advances have served to furnish explanations of results, and of the ways and means thereto; the former having come to light by observation and experience, the latter having been unknown. The discovery of vaccination for the prevention of variola, and the later discovery of immunity to the infection of other diseases and the means of obtaining it, afford examples of this. An example also appears in the following account: Nearly half a century ago Professor George B. Wood, of Philadelphia, in his treatise on "Materia Medica and Therapeutics," advocated the use of the spirits of turpentine in the treatment of typhoid fever. The glazed tongue, with or without the brown stripe, the petechial eruption over the abdomen, and other common symptoms indicated the use of the remedy. Wood's turpentine emulsion came into general use for the purpose named, and that with good reason, improvement being the general result; intestinal evacuations improving; tympanites subsiding; and hemorrhages, if any, being checked. While other antiseptic and germicide remedies have been found useful in many diseases, not excluding the one at hand, the turpentine is found well adapted for use in this, the enteric or typhoid. It goes with little change to the part of the intestinal canal where the disease causes are most active, finds and destroys disease-germs on mucous surfaces, enters and does its work in the tissues, and is found in the excretions. This, with such means for nutrition and support as will maintain tissue vitality, are seen to be the leading essentials in the management of this disease. As suggestive concerning the

general tendency of progress in modern medicine, this much on a single disease is given principally for illustration,—a small part for the greater whole. At the time in the last century when Professor Wood taught his therapeutical management of typhoid fever, and for years thereafter, the character of symptoms, as then observed, was made the only or principal guide for diagnosis and treatment. Not until comparatively recent times were the complete reasons made known for the use of specific remedies in this or other infectious diseases. It remained for the part performed by the specific germ in disease to become known, before the advantage of germicidal remedies could be well understood. This knowledge has come, and is coming, by means of advanced work in the schools, the laboratories, the field of practice, and through the medical literature of the time. The degree of excellence in medical service depends largely upon the quality and completeness of practical knowledge on the part of the physician—this in the common and smaller as well as in the larger affairs of professional work.

We are living at a time of great progress in the world's great departments of science and art; but in no other has advancement been greater or attainments higher than in what belongs to the department of medicine. If it is true that the medical literature of the past and present has had, and is having, its signal part in the aid of such advancement, it is no less true that the advancing medical profession has been active in furnishing the means and directing the way for the upbuilding of the great and growing medical literature, and for making the world of practical medicine what it is to-day.

PNEUMONIA IN CHILDREN

J. P. Barber, M. D.
Minneapolis

It is the purpose of this paper to treat of some of the aspects of pneumonia in infants and very young children as seen in private practice, with special reference to prognosis. The writers of text-books on this subject derive their experience chiefly from hospitals and asylums and

DURATION OF BRONCHOPNEUMONIA

Day	4	5	6	7	8	9	10	11	12	13	14	15	18	21	28	42	120	Total
Under 1 Year		2	5	12	3	4	1	3	1	2	1	3	4	2	2	2		47
1 to 2 Years	2	10	10	7	6	1	5	2				1		3			1	48
2 to 3 Years	2	9	3	7	2		2		2			1		1		1		30
3 to 4 Years		6	4	2	2				1									15
4 to 5 Years		2	2	2		1								1				8
Total	4	29	24	30	13	6	8	5	4	2	1	5	4	7	2	3	1	148

from consulting practice, and, therefore, fail to see the disease in its milder forms. This fact is seen in their statistics. Holt,[1] who gives the most elaborate statistics of any American author on this subject, has a mortality of 65.5 per cent of all cases, and 49.5 per cent of uncomplicated cases of bronchopneumonia. Pepper[2] says the mortality of bronchopneumonia in children under five years of age is 30 to 50 per cent. Morrill[3] gives it as 75 per cent in children between two and three years of age. All agree that the mortality of lobar pneumonia in children is very light—about 4 per cent.

Every general practitioner in the city knows that bronchopneumonia has no such mortality here as the figures I have just read. Holt[4] recognizes the fact that the mortality is less in general practice, and gives it as from 10 to 30 per cent, but he gives no statistics.

I have records of 165 cases of pneumonia in children under five years of age, seen by me in private practice. Of these 17 cases were diagnosed lobar pneumonia and 148 cases bronchopneumonia. Of the 17 cases of lobar pneumonia, one died; of the 148 cases of bronchopneumonia, 12 died, or 8.1 per cent. There were 131 cases uncomplicated, except by simple bronchitis, with 5 deaths, or 3.7 per cent. There were 17 complicated cases with 7 deaths, or 41 per cent. Ten of these had whooping-cough, with 5 deaths; 5 had measles, with 1 death; and 2 had typhoid fever, with 1 death.

The duration of bronchopneumonia, as seen in private practice, is shorter than the text-books would lead one to believe. In 50 cases of recovery tabulated by Holt, only 17 recovered before the tenth day, and 25 between the tenth and the twenty-first day.

The accompanying table shows the duration of the disease and age of patient in the 148 cases seen by me. It will be seen that 114 cases, or 77 per cent, ended before the tenth day. Of these only three died.

It is possible that a few cases of lobar pneumonia have been diagnosed bronchopneumonia, and *vice versa.* There is at times the greatest difficulty in positively distinguishing between the two diseases. I have seen a number of cases in which the crisis took place between the first and fourth days, before a positive diagnosis could be made, which were strongly suspected of being bronchopneu-

monia. None of these have been included in the figures given above.

Climate is believed to be one of the factors which contributes largely to the low death-rate and short duration of pneumonia in this city. There is no doubt that the disease runs a more favorable course in our somewhat elevated location and dry atmosphere than it does in the seaboard cities. Another factor which has already been referred to, is that the general practitioner in private practice sees the disease in its milder, as well as its graver, forms, and the majority of the cases, at least of those in this city, are mild.

The statistics of this disease, as of many others, should be written by the general practioner.

BIBLIOGRAPHY

1.—Infancy and Childhood, pp. 507-508.
2.—American Text-Book of Diseases of Children, p. 909.
3.—Cyclopedia of Diseases of Children, Supplement, p. 440.
4.—Holt.—Archives of Pediatrics, Vol. VIII., pp. 896-897.

DISCUSSION

The Chairman: I know there are a good many present who have seen a number of cases of bronchopneumonia, and I would like to hear from those who have seen cases of that kind. I will ask Dr. Bell to open the discussion.

Dr. J. W. Bell: I agree with everything the doctor has said in his paper. I think our text-book statistics are sadly faulty. They give us the nightmare often when there is no need for it.

Bronchopneumonia in a strong healthy child, in this city certainly, as far as my experience enables me to speak, has not in the past given us any such death-rate as indicated in the text-books. It is possible we mistake certain cases of acute bronchitis, dipping well down into the smaller tubes, for bronchopneumonia, but, excluding that group of cases, our death-rate here has certainly not been as high as indicated in the text-books. This disease is much more fatal in children than lobar pneumonia; however, I think lobar pneumonia is much more frequently met with in children than text-books would lead us to believe. Bronchopneumonia, if handled properly, especially in this climate, responds well to treatment.

Dr. L. A. Nippert: I heartily agree with Dr. Barber and Dr. Bell that the death-rate in bronchopneumonia is not nearly 10 or 15 per cent, as mentioned in the text-books. It is quite common that we have attacks of bronchopneumonia lasting but a short time, and we also have very severe cases which will recover under the most unfavorable circumstances after being sick for weeks and weeks. I believe in this climate bronchopneumonia is not a disease of such fatality as indicated.

Dr. H. P. Barber (Essayist): I think there is nothing to be said in closing the discussion. I simply wish to thank you for the kindly manner in which you discussed the paper.

CONSTIPATION, AND HOW TO CURE IT

HALDOR SNEVE
St. Paul

I desire to present for your consideration a synopsis of a paper in the course of preparation which has the above title. You will admit that the title is ambitious enough,—Constipation, and How to Cure It.

Cure is a word that doctors, with good reason, seldom use, and properly so, but in the whole domain of therapeutics I know of nothing that comes so near to justify the word *cure* as the treatment I am about to describe. First we wish a

DEFINITION

By the constipation that I have in mind I mean the ordinary difficulty in moving the bowels,—the delayed movement or evacuation that we refer to when we ordinarily use the word constipation, and more particularly the sort we refer to when we say chronic constipation: in short, then, a chronic condition of delayed evacuation of the bowels.

PHYSIOLOGICAL CONSIDERATIONS

What, in brief, is the physiology of the movement of the intestinal contents? Here on the wall is a chart which represents the abdominal contents schematically, after Luschka, and I wish you particularly to observe the course of the large bowel, the sigmoid flexure, and rectum. The food passes this long intestinal tube in about eighteen hours, spending from three to four hours in the small intestine, and from twelve to fifteen hours in the large intestine. Our small intestines are almost constantly in movement. The fluid contents are pushed onward by the circular muscles causing a constriction of the tube, and the longitudinal fibres contract causing at the same time a shortening of the tube, thereby pushing forward the contents, while there is continuously a to-and-fro, pendulum-like movement which serves to throw the fluid matters from side to side, so that every part of the lumen takes part in the absorptive process. The solution is faintly acid, and we can safely say that everything in the bowel which is capable of absorption, certainly everything that is soluble, is taken up in this transit. The contents

of the bowel are fluid until they reach these resting places in the sigmoid flexure, where enough fluid is absorbed to leave the contents semifluid. The semifluid mass, descending in the rectum in a small column, impinges upon the sensory filaments of the sacral nerves, which are distributed to the lower part of the bowel. A telephone message goes to the center in the spinal cord, and thence to the brain, which apprises us of the fact that there is something in the bowel ready for evacuation. If we heed this and go to stool, the levator ani, the sphincters, and the abdominal muscles and diaphragm act together in removing the contents of the bowel. In this country we usually assume the sitting attitude at stool. Those who have studied the subject, more particularly in France, have advocated the squatting position as the most natural one, and one which gives the accessory muscles of defecation the best conditions for acting. In Paris you will find, in most of the private and public places, provisions to carry out this idea.

The other chart shows us the nervous connection according to a scheme by Foster. We find that the cerebrospinal system comes into direct contact with the bowel through the sacral nerves only; and you must bear this point in mind, because this has most to do with our subject. Indirectly, we find the cerebrospinal system in connection with the bowel through the pneumogastrics and through the short branches from the dorsal cord. These enter the large sympathetic plexuses in the abdomen, and are distributed to the greater part of the bowel.

The average amount discharged in twenty-four hours is about four to six ounces, but this of course varies with the diet. The average person moves the bowels once every twenty-four hours, usually in the morning, when change of position and the introduction of food into the stomach have restimulated peristalsis.

CAUSES OF CHRONIC CONSTIPATION

The most important, I might say the all-important, cause of constipation is inattention to the calls of nature. This column of descending semisolid feces impinging upon these sacral filaments constantly transmitting this message to the centers above. The reflex arc becomes overfatigued, and we suppress this message; and the next time of the wonted movement this telegram to the centers is

fainter. This may continue two or three days when the presence of feces in the rectum is brought to our attention through a sensation of fulness and weight.

We can usually diagnosticate chronic constipation if we find with the examining finger a pouching of the rectum above the anus, and small, round masses like sheep dejecta.

The second potent cause of chronic constipation is artificial stimulation of peristalsis by means of laxative medicines, and injections into the bowels. I am sorry to say that the medical profession is responsible for the widespread belief among the laity that a delayed evacuation of the bowels is inimical to health. In the five or six hundred cases of chronic constipation that I have treated, and in numbers of individuals without constipation, I have found that many people have perfect health with only one or two movements of the bowels a week, and I know of one case where the bowels were evacuated but once a month. Most of you know of the case that died in South Dakota this spring where the bowels moved only once a year, and there are many cases recorded in literature where the bowels moved only once every two or three months, and all with good health. On the other hand, I know of cases where the bowels move morning and evening, and many where the bowels move after each meal.

There are many ghosts in the domain of medicine, and there is none that wanders around so persistently, even in the daytime, as the ghost of auto-intoxication. If we were to believe most of our practitioners of medicine we should have to acknowledge that everything, from neurasthenia and insanity to gouty deposits in the big toe, is caused by intestinal toxemia; and this intoxication, mind you, is not from the natural absorption of the food in its passage while in solution and under the best conditions for absorption, but it is from the semisolid mass down in the sigmoid flexure and rectum, from which everything soluble has been extracted, and which has been delayed in evacuation simply, that this dangerous auto-intoxication comes. Bouchard's investigations of the feces from the rectum failed to show toxine material when ex- [illegible] and injected into animals, and he says in his book [illegible] to reason that everything soluble has been [illegible] the feces arrive in the rectum. The point [illegible] er says, that there has never [illegible] xication from the delayed

evacuation of normal feces. If there is intoxication it must be from the absorption of the soluble matters in the chyme, and especially from the small intestine.

TREATMENT

Remove the cause, *i. e.,* instruct the patient to go to stool every morning whether there be a call or not, and attempt to move the bowels. Let him drink a glass of cold water before breakfast and refrain from all drugs and injections. This is sufficient in the majority of cases. In the bad cases where there is an atony of the stomach and intestines, we can use gymnastics, massage, and electricity. The abdominal massage when administered properly improves the nutrition of the abdominal organs, especially stimulating the large bowel, which is really the only specific organ that should be kneaded. The gymnastics consist in some bending and straightening movements to improve and strengthen the tone of the abdominal muscles particularly, and the electricity is used mainly for this last purpose. The abdominal massage must be taught by a skilled person who understands it, and it should be administered only by physicians and masseurs or masseuses especially skilled.

DISCUSSION

The Chairman: There are certainly some gentlemen here who have had experience in this matter, and most of you are willing to talk about your experience, therefore I would like to hear this paper thoroughly discussed.

Dr. H. A. Tomlinson: I would like to call attention to the effect of perversion of function in the activity of the internal sphincter in the production of constipation. When the feces enter the rectum they give rise to the sensation which calls for the evacuation of its contents. If this sensation is ignored, and the relaxation of the sphincter resisted, a reverse peristalsis is set up, and the contents of the rectum are returned into the sigmoid flexure. Finally, as the result of constant failure in the effort at evacuation, the sensibility of the rectum becomes obtunded, and the feces accumulate and distend it, while the persistent voluntary effort to control the action of the sphincter results in the production of undue irritability, which leads to spasmodic contraction whenever any fecal matter is in the rectum, and in the end this spasm is increased whenever an effort is made to evacuate the contents of the rectum, so that there is a complete reversal of the function of the internal sphincter.

I have happened to see a great many cases of this kind of constipation. They are usually associated with some form of disturbance in the nervous system, and they not infrequently occur in women whose occupation or surroundings interfere

with their going regularly to stool. However, the first case of this kind I ever recognized occurred in a case of tuberculosis where there was an ulcer at the anus. The pain accompanying the act of defecation had led the patient to resist the effort at evacuation of the rectum until there was persistent spasm of the internal sphincter. Paralysis of the sphincter by stretching completely cured this case, and has been effective in all of the cases of this kind of constipation which I have since seen. I have no doubt but that Dr. Snévé has had a similar experience, although he does not mention it.

Dr. C. O. Wright: I was very much interested in the subject of chronic constipation from the fact that the majority of us country physicians have a great deal to do with that class of patients. They come to us with sluggish bowels, and we must resort to some laxative for immediate results; and if we follow out that line we do not think we can do anything better than to relieve the intestines of their contents. However, I think the majority of cases of constipation, especially in women, are brought about by habit. In the majority of places, especially in the country, they have not the facilities they have in the cities, where they have warm closets and other conveniences, and under such circumstances they will naturally neglect nature's call, and if they do this once they will do it again, and as the result of that habit chronic constipation ensues. I most heartily agree with Dr. Snévé in his method of correcting this habit, although many of our patients will say they have tried to overcome this habit, but without result. A very simple thing is known to stimulate the bowels and cause the muscles to respond, and help the patient to overcome the habit. Constipation is not only a bad thing of itself, but it will bring on a nervous condition and give us a double-header. If we overcome constipation we overcome nervousness in these cases.

Dr. Mary S. Whetstone: I have been exceedingly interested in Dr. Snévé's paper, and I rise to emphasize the use of water as a remedy for constipation. The difficulty of carrying out the method advised has been remarked upon. Water is a remedy of value. Everyone can avail himself of its use if so disposed. I have repeatedly advised the free use of water with patients having this ailment, with most gratifying results. One patient thus relieved, exclaimed: "Doctor, tell all your patients having constipation that they may be cured by drinking freely of water." True, not all of this class of patients have been cured; possibly they did not drink as much water as prescribed. One case was extremely obstinate, resisting all remedies; two or three compound cathartic pills had no effect. Finally 1-3 gr. pill of aloes daily affected a permanent cure.

Dr. Haldor Snévé (Essayist): In reference to the point Dr. Tomlinson refers to, I meant to state that the chronic constipation I am speaking about is the idiopathic kind, where there is no connection with any lesion of the bowels or stricture of the rectum or spasm of the sphincters, which are cases that must be corrected surgically. I am speaking simply of the ordinary delayed movement of the bowels.

As to what Dr. Wright mentions: that is, of course, the

same as the multitude of remedies that are invented and have been used in rotation.

Dr. Whetstone brought up the question of the use of hot or cold water. What is there in water that benefits the movement of the bowels? The presence of a great deal of water mechanically gives nature a substance to dissolve things; it makes the contents of the bowels fluid; it makes things softer. As to the use of hot or cold water in the treatment of this condition: that is a question of temperature. If you are determined to administer a laxative, give a glass of cold water before breakfast, because cold water produces stimulation, and that accelerates peristalsis. Heat does it also, but to a lesser extent. Heat stimulates peristalsis, but cold is a more intense irritant than heat; therefore, if you want to use an artificial stimulation for peristalsis, prescribe a glass of cold water. Whenever it is necessary to produce an immediate evacuation of the bowels for the purpose of counterirritation or derivation in other diseases we usually resort to some cathartic, and not a laxative. It is not that I decry the use of evacuants for any purpose aside from ordinary torpid bowels; but I do protest against the use of laxatives simply to unload the little accumulation in the lower bowel. We must remember that nature never intended to make use of artificial means for the purpose of evacuating the rectum, because we know that nature has installed a most delicate and efficient apparatus there for that purpose, and it is only, as a rule, bad habit that renders it inefficient. The laity is thoroughly imbued with the idea that if the bowels do not move every day something terrible is going to happen, and the profession weakly submits to the demands for laxatives. One doctor gives cascara, another a. b. s. pills, another some saline, another high irrigation of the bowels, another uses suppositories, and so on *ad infinitum ad nauseam*. The production of neurasthenia and the multitude of other nervous diseases from the absorption of theoretical toxins in the sigmoid flexure and rectum is ridiculous. If there be absorption, it must occur higher up.

THE VALUE OF SIMPLE METHODS IN THE EXAMINATION OF THE STOMACH

SOREN P. REES, B. S., M. D.

Minneapolis

Based upon a correct diagnosis, the treatment of diseases of the stomach gives better results than that of most other chronic ailments; and without an accurate diagnosis treatment is entirely unsatisfactory. Previous to the introduction of tests for the examination of stomach-contents, treatment was largely empirical. At present the effort to develop and perfect these laboratory aids has

led, in many instances, to chemical and physiological tests so complex as to be far beyond the ordinary practitioner and only within reach of the specialist who has at his command much time, a well equipped laboratory, and trained assistants. This present tendency is well illustrated by the introduction lately of a very elaborate method for estimating the amount of HCl by means of electricity.

Those who are without the facilities of the specialist and who nevertheless honestly attempt to make a diagnosis on which to base treatment, must rely in many cases upon simpler methods, which, while they may not be as accurate as some of the more elaborate, will nevertheless furnish enough evidence to place treatment on a scientific footing. It is to briefly call attention to some of these simpler methods that this paper is written.

The simple method has in itself many advantages. It is within reach of all, saves much time, diminishes chance of error in its development, permits of tests being made in many instances when the longer methods could not be used, and often allows of repeated tests in the same case. This last point is important. Digestion, whether normal or faulty, is such a complex process, and is influenced by so many factors beyond the immediate sphere of the stomach itself, that one finding is often misleading, and repeated tests must be made in order that an accurate average result may be obtained. This is especially true in that large and rapidly increasing group of gastric disturbances commonly designated as nervous dyspepsia. One examination may show entire absence of HCl; and the next day a faint trace, or even a large percentage, may be found.

That chemical and microscopical tests, though only approximately accurate, are of much value will not be disputed by anyone who has made intelligent use of them. The fact that a short time ago a leading surgeon in this state, while discussing the surgical treatment of the stomach, calmly dismissed all chemical tests by saying they were absolutely of no value, simply emphasizes how unsatisfactory the long and complex methods are to the rank and file of the profession, who have neither time nor facilities to make proper use of them. In the examination of no other organ is a definite plan of procedure so important to a correct finding. In every severe or obscure

same as the multitude of remedies that are invented and have been used in rotation.

Dr. Whetstone brought up the question of the use of hot or cold water. What is there in water that benefits the movement of the bowels? The presence of a great deal of water mechanically gives nature a substance to dissolve things; it makes the contents of the bowels fluid; it makes things softer. As to the use of hot or cold water in the treatment of this condition: that is a question of temperature. If you are determined to administer a laxative, give a glass of cold water before breakfast, because cold water produces stimulation, and that accelerates peristalsis. Heat does it also, but to a lesser extent. Heat stimulates peristalsis, but cold is a more intense irritant than heat; therefore, if you want to use an artificial stimulation for peristalsis, prescribe a glass of cold water. Whenever it is necessary to produce an immediate evacuation of the bowels for the purpose of counterirritation or derivation in other diseases we usually resort to some cathartic, and not a laxative. It is not that I decry the use of evacuants for any purpose aside from ordinary torpid bowels; but I do protest against the use of laxatives simply to unload the little accumulation in the lower bowel. We must remember that nature never intended to make use of artificial means for the purpose of evacuating the rectum, because we know that nature has installed a most delicate and efficient apparatus there for that purpose, and it is only, as a rule, bad habit that renders it inefficient. The laity is thoroughly imbued with the idea that if the bowels do not move every day something terrible is going to happen, and the profession weakly submits to the demands for laxatives. One doctor gives cascara, another a. b. s. pills, another some saline, another high irrigation of the bowels, another uses suppositories, and so on *ad infinitum ad nauseam*. The production of neurasthenia and the multitude of other nervous diseases from the absorption of theoretical toxins in the sigmoid flexure and rectum is ridiculous. If there be absorption, it must occur higher up.

THE VALUE OF SIMPLE METHODS IN THE EXAMINATION OF THE STOMACH

SOREN P. REES, B. S., M. D.

Minneapolis

Based upon a correct diagnosis, the treatment of diseases of the stomach gives better results than that of most other chronic ailments; and without an accurate diagnosis treatment is entirely unsatisfactory. Previous to the introduction of tests for the examination of stomach-contents, treatment was largely empirical. At present the effort to develop and perfect these laboratory aids has

led, in many instances, to chemical and physiological tests so complex as to be far beyond the ordinary practitioner and only within reach of the specialist who has at his command much time, a well equipped laboratory, and trained assistants. This present tendency is well illustrated by the introduction lately of a very elaborate method for estimating the amount of HCl by means of electricity.

Those who are without the facilities of the specialist and who nevertheless honestly attempt to make a diagnosis on which to base treatment, must rely in many cases upon simpler methods, which, while they may not be as accurate as some of the more elaborate, will nevertheless furnish enough evidence to place treatment on a scientific footing. It is to briefly call attention to some of these simpler methods that this paper is written.

The simple method has in itself many advantages. It is within reach of all, saves much time, diminishes chance of error in its development, permits of tests being made in many instances when the longer methods could not be used, and often allows of repeated tests in the same case. This last point is important. Digestion, whether normal or faulty, is such a complex process, and is influenced by so many factors beyond the immediate sphere of the stomach itself, that one finding is often misleading, and repeated tests must be made in order that an accurate average result may be obtained. This is especially true in that large and rapidly increasing group of gastric disturbances commonly designated as nervous dyspepsia. One examination may show entire absence of HCl; and the next day a faint trace, or even a large percentage, may be found.

That chemical and microscopical tests, though only approximately accurate, are of much value will not be disputed by anyone who has made intelligent use of them. The fact that a short time ago a leading surgeon in this state, while discussing the surgical treatment of the stomach, calmly dismissed all chemical tests by saying they were absolutely of no value, simply emphasizes how unsatisfactory the long and complex methods are to the rank and file of the profession, who have neither time nor facilities to make proper use of them. In the examination of no other organ is a definite plan of procedure so important to a correct finding. In every severe or obscure

same as the multitude of remedies that are invented and have been used in rotation.

Dr. Whetstone brought up the question of the use of hot or cold water. What is there in water that benefits the movement of the bowels? The presence of a great deal of water mechanically gives nature a substance to dissolve things; it makes the contents of the bowels fluid; it makes things softer. As to the use of hot or cold water in the treatment of this condition: that is a question of temperature. If you are determined to administer a laxative, give a glass of cold water before breakfast, because cold water produces stimulation, and that accelerates peristalsis. Heat does it also, but to a lesser extent. Heat stimulates peristalsis, but cold is a more intense irritant than heat; therefore, if you want to use an artificial stimulation for peristalsis, prescribe a glass of cold water. Whenever it is necessary to produce an immediate evacuation of the bowels for the purpose of counterirritation or derivation in other diseases we usually resort to some cathartic, and not a laxative. It is not that I decry the use of evacuants for any purpose aside from ordinary torpid bowels; but I do protest against the use of laxatives simply to unload the little accumulation in the lower bowel. We must remember that nature never intended to make use of artificial means for the purpose of evacuating the rectum, because we know that nature has installed a most delicate and efficient apparatus there for that purpose, and it is only, as a rule, bad habit that renders it inefficient. The laity is thoroughly imbued with the idea that if the bowels do not move every day something terrible is going to happen, and the profession weakly submits to the demands for laxatives. One doctor gives cascara, another a. b. s. pills, another some saline, another high irrigation of the bowels, another uses suppositories, and so on *ad infinitum ad nauseam.* The production of neurasthenia and the multitude of other nervous diseases from the absorption of theoretical toxins in the sigmoid flexure and rectum is ridiculous. If there be absorption, it must occur higher up.

THE VALUE OF SIMPLE METHODS IN THE EXAMINATION OF THE STOMACH

SOREN P. REES, B. S., M. D.

Minneapolis

Based upon a correct diagnosis, the treatment of diseases of the stomach gives better results than that of most other chronic ailments; and without an accurate diagnosis treatment is entirely unsatisfactory. Previous to the introduction of tests for the examination of stomach-contents, treatment was largely empirical. At present the effort to develop and perfect these laboratory aids has

led, in many instances, to chemical and physiological tests so complex as to be far beyond the ordinary practitioner and only within reach of the specialist who has at his command much time, a well equipped laboratory, and trained assistants. This present tendency is well illustrated by the introduction lately of a very elaborate method for estimating the amount of HCl by means of electricity.

Those who are without the facilities of the specialist and who nevertheless honestly attempt to make a diagnosis on which to base treatment, must rely in many cases upon simpler methods, which, while they may not be as accurate as some of the more elaborate, will nevertheless furnish enough evidence to place treatment on a scientific footing. It is to briefly call attention to some of these simpler methods that this paper is written.

The simple method has in itself many advantages. It is within reach of all, saves much time, diminishes chance of error in its development, permits of tests being made in many instances when the longer methods could not be used, and often allows of repeated tests in the same case. This last point is important. Digestion, whether normal or faulty, is such a complex process, and is influenced by so many factors beyond the immediate sphere of the stomach itself, that one finding is often misleading, and repeated tests must be made in order that an accurate average result may be obtained. This is especially true in that large and rapidly increasing group of gastric disturbances commonly designated as nervous dyspepsia. One examination may show entire absence of HCl; and the next day a faint trace, or even a large percentage, may be found.

That chemical and microscopical tests, though only approximately accurate, are of much value will not be disputed by anyone who has made intelligent use of them. The fact that a short time ago a leading surgeon in this state, while discussing the surgical treatment of the stomach, calmly dismissed all chemical tests by saying they were absolutely of no value, simply emphasizes how unsatisfactory the long and complex methods are to the rank and file of the profession, who have neither time nor facilities to make proper use of them. In the examination of no other organ is a definite plan of procedure so important to a correct finding. In every severe or obscure

same as the multitude of remedies that are invented and have been used in rotation.

Dr. Whetstone brought up the question of the use of hot or cold water. What is there in water that benefits the movement of the bowels? The presence of a great deal of water mechanically gives nature a substance to dissolve things; it makes the contents of the bowels fluid; it makes things softer. As to the use of hot or cold water in the treatment of this condition: that is a question of temperature. If you are determined to administer a laxative, give a glass of cold water before breakfast, because cold water produces stimulation, and that accelerates peristalsis. Heat does it also, but to a lesser extent. Heat stimulates peristalsis, but cold is a more intense irritant than heat; therefore, if you want to use an artificial stimulation for peristalsis, prescribe a glass of cold water. Whenever it is necessary to produce an immediate evacuation of the bowels for the purpose of counterirritation or derivation in other diseases we usually resort to some cathartic, and not a laxative. It is not that I decry the use of evacuants for any purpose aside from ordinary torpid bowels; but I do protest against the use of laxatives simply to unload the little accumulation in the lower bowel. We must remember that nature never intended to make use of artificial means for the purpose of evacuating the rectum, because we know that nature has installed a most delicate and efficient apparatus there for that purpose, and it is only, as a rule, bad habit that renders it inefficient. The laity is thoroughly imbued with the idea that if the bowels do not move every day something terrible is going to happen, and the profession weakly submits to the demands for laxatives. One doctor gives cascara, another a. b. s. pills, another some saline, another high irrigation of the bowels, another uses suppositories, and so on *ad infinitum ad nauseam*. The production of neurasthenia and the multitude of other nervous diseases from the absorption of theoretical toxins in the sigmoid flexure and rectum is ridiculous. If there be absorption, it must occur higher up.

THE VALUE OF SIMPLE METHODS IN THE EXAMINATION OF THE STOMACH

SOREN P. REES, B. S., M. D.

Minneapolis

Based upon a correct diagnosis, the treatment of diseases of the stomach gives better results than that of most other chronic ailments; and without an accurate diagnosis treatment is entirely unsatisfactory. Previous to the introduction of tests for the examination of stomach-contents, treatment was largely empirical. At present the effort to develop and perfect these laboratory aids has

led, in many instances, to chemical and physiological tests so complex as to be far beyond the ordinary practitioner and only within reach of the specialist who has at his command much time, a well equipped laboratory, and trained assistants. This present tendency is well illustrated by the introduction lately of a very elaborate method for estimating the amount of HCl by means of electricity.

Those who are without the facilities of the specialist and who nevertheless honestly attempt to make a diagnosis on which to base treatment, must rely in many cases upon simpler methods, which, while they may not be as accurate as some of the more elaborate, will nevertheless furnish enough evidence to place treatment on a scientific footing. It is to briefly call attention to some of these simpler methods that this paper is written.

The simple method has in itself many advantages. It is within reach of all, saves much time, diminishes chance of error in its development, permits of tests being made in many instances when the longer methods could not be used, and often allows of repeated tests in the same case. This last point is important. Digestion, whether normal or faulty, is such a complex process, and is influenced by so many factors beyond the immediate sphere of the stomach itself, that one finding is often misleading, and repeated tests must be made in order that an accurate average result may be obtained. This is especially true in that large and rapidly increasing group of gastric disturbances commonly designated as nervous dyspepsia. One examination may show entire absence of HCl; and the next day a faint trace, or even a large percentage, may be found.

That chemical and microscopical tests, though only approximately accurate, are of much value will not be disputed by anyone who has made intelligent use of them. The fact that a short time ago a leading surgeon in this state, while discussing the surgical treatment of the stomach, calmly dismissed all chemical tests by saying they were absolutely of no value, simply emphasizes how unsatisfactory the long and complex methods are to the rank and file of the profession, who have neither time nor facilities to make proper use of them. In the examination of no other organ is a definite plan of procedure so important to a correct finding. In every severe or obscure

stomach trouble the following points must be clearly ascertained:

1. A concise and intelligent history of the present complaint and of the patient's life, habits, and family history must be procured, and accurately set down in the case-record for exact reference. These facts are often elicited with difficulty. The patient can give little testimony that is clear, and is easily led, if prompted, into making misleading statements. The keenest observation is here necessary to sift the chaff from the wheat. The smallest oversight may be a cause of failure. Dr. Herschell tells of a case he had treated for indigestion for some time without results, and which completely baffled him until one day while making a visit he noticed on a table over in a corner of the room a small dish of bonbons. Upon further questioning, the patient admitted taking afternoons a small piece of candy. As soon as this practice was stopped, the patient made a satisfactory recovery. It is our custom to procure the history the day previous to making the physical examination, in order that ample time may be given for the consideration of the points to be specially noticed at the time of the examination. No better guide for a clear and definite idea of how to obtain the history can be given than Chapter III on "The Interrogation of the Patient," in Dr. Herschell's book, "Indigestion." This chapter has been of more practical help to the writer than any similar article he can recall. It gives a full discussion of the significance of all the questions to be asked and points to be noted.

2. The size, shape and position of the stomach, empty and moderately distended, must be ascertained. To determine these one must know the normal topography. Too often "medical anatomy" is overlooked, although it is fully as essential to an accurate practice of medicine as a knowledge of surgical anatomy is to the surgeon. The normal boundaries of the stomach, however, may be much changed without causing pathologic symptoms. The greater curvature, though usually an inch or more above the umbilicus, may be found, in health, to extend considerably below this point. The size and position of the stomach, considered as a cause of disease, depend entirely upon its motor power. If the motor power is unimpaired, and the pylorus patent, a dilated stomach will give no trouble.

3. The motor power of the stomach must be determined. Atony of the stomach-wall is one of the most frequent causes of impaired function. The motor power is best determined by giving the patient an ordinary meal, and then ascertaining by means of the stomach-tube whether the stomach has emptied itself in the proper time. The nature of the meal must be considered in determining when the stomach should be empty. Ewald's test breakfast, 3 ounces of bread and 10 ounces of tea, should only remain two hours. Leube's test dinner, a plate of soup (13 ounces), scraped beef, 2 ounces, and 1¾ ounces of wheaten bread, should not remain longer than six or seven hours. A simple and admirable method of determining the tonicity of the stomach-walls depends upon the fact that if a healthy person drinks one litre of water, the dullness corresponding to the greater curvature is always above the umbilicus. If, however, the viscus is dilated, it will reach below this point. It is best performed in the following manner: First of all a quarter of a litre of water is given the patient to drink, and then the greater curvature is made out on percussion. This is followed up with successive portions of the same quantity, percussing each time. When there is considerable atony the stomach will quickly sink down after one or two glasses of water have been taken.

4. The secretory power of the stomach by means of a test meal must be determined. The absence or presence of HCl, and its exact percentage, in the stomach-contents is the most important chemical test sought. It at once explains whether pain is due to fermentation for lack of acid or to irritation caused by too much acid. Its bearing upon the differential diagnosis of gastritis, ulcer, or beginning carcinoma is too well known to need mention. The acid occurs in two forms, free and combined. If a proteid meal has been taken the HCl secreted is rapidly taken up and combined with it, and until this affinity has been satisfied no free HCl is found in the stomach-contents. If the meal is pure or nearly pure carbohydrates, free HCl is found in a few minutes, although the total acidity is somewhat lower than in the first instance. The length of the period in which no free HCl is present may therefore vary from a few minutes up to forty-five or sixty minutes, according to the amount of proteids taken, and may be called the first stage of digestion. In the

second stage the total acidity continues to rise, but free HCl is present. The length of this period depends upon the amount of proteid food present. It is generally from two to three hours. In the third stage food is being propelled from the stomach, the total acidity falls, but a large proportion of free HCl is present. In testing for HCl, three things must therefore be considered:

(a) The nature of the meal given.

(b) The time it has remained in the stomach.

(c) Whether the test used will detect free HCl, or combined HCl, or both. By giving a test breakfast of baked rice-cake and water we have only free HCl to deal with, and if removed at the height of digestion, about 60 minutes, the amount of free HCl present will give us in every case a true relative amount of acid secreted.

Many very delicate and beautiful tests have been devised for determining the proportion of HCl present, most of which are long and involved. In testing for the mere presence of HCl in the stomach-contents with the dimethyl solution, Dr. J. W. Bell has long noted that the intensity of the red color resulting varied greatly and probably in a definite ratio to the proportion of HCl present. At his suggestion, the writer has worked out a color-scale based upon a definite solution of HCl and a definite amount of dimethyl added. The results of this simple test have been repeatedly compared with those of the longer quantitative methods, and have been found very accurate in spite of certain theoretical objections that might be raised. A description of the test has already been given as follows ("The Medical Aspect of Gastric Cancer," J. W. Bell, M. D., N. W. Lancet, Oct. 15, 1901):

"The test depends upon the fact that the intensity of the color reaction of Topfer's solution of dimethyl-amido-azo-benzol (a one-half of one per cent alcoholic solution) with hydrochloric acid depends upon and varies with the percentage of free hydrochloric acid found in the fluid tested. It is convenient to establish a color-scale by adding the reagent to a number of test-tubes, each containing the same amount of solution, but each solution varying in its percentage of hydrochloric acid. For this purpose we have used a small rack holding seven small test tubes. Test-tube No. 'O' contains 4 c. c. of distilled water, to which one drop of the reagent has been added.

The resulting color is a light canary, and represents entire absence of hydrochloric acid. The other six test-tubes hold each 4 c. c. of a solution of hydrochloric acid and distilled water, but of a gradually increasing strength.

"Thus test-tube No. 1 represents .005% HCl, or 1 in 20,000; the smallest trace of HCl discernible by use of reagent.

Test-tube No. 2 represents .05% HCl.

Test-tube No. 3 represents .1% HCl.

Test-tube No. 4 represents .2% HCl (normal).

Test-tube No. 5 represents .4% HCl.

Test-tube No. 6 represents .6% HCl.

"To these test-tubes enough reagent has been added to bring out the full strength of the color in each tube. This has been found to be

"1 drop for tube 1; 2 drops for tube 2; 4 drops for tube 3; 8 drops for tube 4; 16 drops for tube 5; 24 drops for tube 6.

"In this way we have a permanent and convenient color-scale before us with which to compare the filtered stomach-contents to be tested for free HCl. In testing a given specimen the same amount (4 c. c.) of filtered stomach-contents is taken, and one drop of the reagent is added. If HCl is found to be present, the resulting color is matched as nearly as possible with one in the scale, and another drop of the reagent is added to see if a change in color results. If so, this new shade is to be compared with the colors, and its place in the scale determined as closely as possible, when a third drop of reagent may be added. This process is continued until a color is produced which does not change upon adding more reagent. This permanent color is located in the color-scale, and its mate then indicates the percentage of HCl present.

"The color-scale is best viewed by reflected light against a sheet of white paper, the light striking obliquely.

"As a check upon this method, another test which we found very serviceable, though requiring quicker judgment, and perhaps more experience, is to allow one drop of the above solution of HCl and water to unite with a drop of the reagent upon a white porcelain plate, and to quickly bring together near this series of colors a drop

of the reagent and a drop of the filtered stomach-contents to be examined, and to harmonize the intensity of the color of this last drop with that of one of the others, the strength in HCl of which is known.

"As the color in the test-tubes will fade somewhat with time, we have found it convenient to make up solutions of the above strength of HCl, and to keep them in separate glass-stoppered bottles, duly labeled. From these stock solutions one can prepare in a few minutes a fresh color-scale, or use them in the drop method to verify an estimate already made by the scale."

5. The presence of organic acids should be noted if the percentage of HCl is deficient. These are lactic, butyric and acetic. They may often be discovered by their odor. If HCl be absent, and carcinoma of the stomach is suspected, it is well to give a test-meal free from lactic acid, such as baked oatmeal cakes. If the stomach has previously been washed out, we may feel assured that any lactic acid found is formed in the stomach itself. Uffelmann's test is simple and accurate.

6. A microscopic examination of the stomach contents or residue from the filtrate should be carefully made for R. B. C., certain bacilli and fungi, bits of detached neoplasms, and the nature of food particles undigested. Not until this method has been carefully followed and success in it attained can one form a true estimate of how positive and speedy evidence may be gotten from this simple procedure. As in the microscopical examination of feces, it is well to study every case brought to notice in this way in order to become familiar with the large number of appearances met with. The microscope during the last year has given us a very early and positive diagnosis in several obscure and important cases that could at that time be reached by no other method.

A convenient method of procedure in the ordinary stomach case, if the physician has only limited facilities, would then be as follows:

Obtain the history on the day previous, and ask the patient to come to the office the next morning without taking any food whatever. This will allow an examination of the empty stomach. If the stomach is not empty or any doubt on this point exists, after a careful examination by the usual methods of inspection, palpation, percussion and ausculation, the stomach-tube is introduced.

If any contents are found they are saved for examination. If these are food from the previous night they at once tell of imperfect digestion and delayed emptying of the stomach, and the cause of such delayed emptying must be sought for. If not food, but gastric secretion, its acidity and composition must be determined. In either case the contents are subjected to the full examination already ascribed to the test-meal. Mucus in excess is easily recognized. Normally it should not exceed one-half teaspoonful.

If the stomach be empty, a test breakfast of two ounces of rice-cake and a glass of water is next given. This is removed in sixty minutes, and while the tube is still in place the stomach is distended with water. This test with the patient in the upright position gives an absolute test for the greater curvature, and for this purpose is much more reliable than distending the stomach with gas. With the tube still in place the water is siphoned out and the stomach is distended by means of the tartaric acid and sodium bicarbonate powders. The stomach thus distended can easily be mapped out in all its dimensions by means of percussion. We give the sixty grains of tartaric acid first in order to avoid retching due to the premature formation of gas in an already acid stomach, if the eighty grains of sodium bicarbonate were first given.

In these cases when we may not wish to use the tube, but where nevertheless we desire to distend the stomach by means of gas, we have found it perfectly safe, notwithstanding many writers to the contrary, to give the powders by mouth dissolved in a little water. By giving the soda last and in two or three divided doses, the amount of gas generated can be kept under control.

There should be no difficulty in differentiating with or without the stethoscope between the stomach and colon. If the colon be full of gas the demarcation will best be made out while the stomach is distended with water; if the colon be filled with feces, the stomach distended with gas will give the most striking picture. While the stomach is thus distended tumors or indurations of its walls or pylorus are sought for. In differentiating between neoplasms nearby, but not in the stomach, their movement with respiration is carefully noted. A stomach fully distended with gas will often throw an enlarged or dis-

eased gall-bladder forward so that it can be clearly palpated and separated from a thickened pylorus.

In conclusion: It is desirable to ascertain as much as possible from one method of examination before proceeding to the next, and to make all possible use of the simpler methods before attempting the more elaborate.

DISCUSSION

Dr. J. W. Andrews: The writer spoke about getting a history of the case, and it occurred to me how difficult it often is to get a correct history in the case of the stomach, or otherwise.

As to the physical examination: I have examined many stomachs, and I do not believe that there is much difference in the distensibility of a healthy stomach. I mean that if the stomach is distended below the umbilicus you can pretty surely lay it to a diseased stomach; and rarely have I found the curvature of the stomach extended below the umbilicus, but what there were symptoms that would lead one to believe there was an enormous dilatation. I have examined healthy stomachs and got a correct outline, and whether extended with gas, as the writer suggests, or with soda, acid, or with water, I have found that the distention does not extend below the umbilicus, but about two fingers' breadth above it; and where it does extend below, I found a diseased stomach that does not empty itself well, and where a patient vomited at all it was a great deal of sour matter. I noticed in the Journal of the American Medical Association a new and rather novel method of determining the outline of the stomach, namely, to fill the stomach full of water by means of a double tube, then blowing air through one tube the air rises through the water, and, the writer states, one can be very accurate in determining the outline of the stomach. If the stethoscope is placed a trifle below the stomach the sound is much less distinct, but if the stethoscope is placed over the stomach the sound is very distinct. Machinery of that kind is unnecessary. There are few patients, unless they have become accustomed to the stomach-tube, who would be willing to have made the test I have just spoken of. The stomach can be outlined very definitely by means of the stethoscope and percussion. I think with a little experience one can almost exactly outline the stomach with the stethoscope.

Dr. T. F. Quinby: It seems a little like presumption on my part to criticise the excellent paper that Dr. Rees has read. I agree with him on essentials. I cannot agree with the statement of the gentleman, if I understood him correctly, who thought that extension below the umbilicus is dilatation. It is well known that we have many cases of so-called gastroptosis in which the outline of the stomach may lie several inches below the umbilicus, yet the cubic contents or the capacity of the stomach be not increased. There is no decrease in its muscular extent and ability to expel its contents, provided there is no obstruction of the pyloric orifice. In mapping out the curvature, it is the general custom to first percuss very carefully the abdomen, marking in blue pencil where there is a change of note between

the colon distended, which will determine the lower curvature of the stomach; then the patient is given about a quart of water, and percussion is again made. If there is a shadow of doubt the quantity of water is increased to a liter or more. It is a fact that the normal stomach, regardless of the amount of water introduced, will not be changed. You may pour one liter or two into the stomach, and hold it without changing the relative position of its lower curvature. The presence of a liter of water in the stomach will give you a distinct outline, which should be about five-eighths of an inch above the umbilicus. Should any doubt exist a double balloon is attached, and air dilitation made through it. The patient is instructed to raise the hand at the first indication of discomfort. It is not necessary to use the stethoscope, but by simply placing the hand on the stomach the gurgle is distinctly felt. With the upper part of the stomach thoroughly distended you can make out a map with distinctness. But, as a rule, if the lower curvature is found in the proper position, you may be pretty sure the upper curvature is likewise the same.

The doctor's method of chemical analysis as given by him cannot be too strongly emphasized, for unless the utmost care is taken in the chemical analysis of the stomach the examination is almost nugatory. It is useless to diagnose upon a single examination of the stomach, because, as he states and as I can testify, a single examination of the stomach may show an absolute absence of hydrochloric acid, while the next one may show the presence of hydrochloric acid in its normal proportion, or even in excess.

I am a thorough believer in the necessity of a thorough examination of the stomach in all cases, because I believe it to be the avenue through which many mischievous germs may be introduced, and by means of which we may perhaps determine what bearing it has upon the introduction of disease to remote parts of the body. Heretofore the stomach has been passed over in a cursory manner. I remember in my student days it was not considered necessary to introduce the stomach-tube, and I have repeatedly, even at a late day, seen a gentleman who stands deservedly high in the profession,—a gentleman who is now an emeritus professor, and has one clinic a week, and who was then professor of internal medicine,—who would introduce several quarts of water into the stomach, and induce the patient to vomit it out, and simply ventured an opinion of the actual condition by the sample of the contents thus obtained. I do not believe he would have done it in his private practice, but in his clinical work he was overburdened and anxious to lay it down.

I was very much interested in Dr. Rees' paper, and interested in the way he handled it.

Dr. Geo. D. Head: There are several points touched upon in the paper which will permit of further discussion. The chief objection that can be raised to this method of determining the amount of hydrochloric acid in the stomach-contents, is that it is not reliable. Lactic acid, if present in the stomach-contents in even small quantities, will give a color-reaction with the dimethyl-amido-benzol solution similar to that of hydrochloric

acid. One could therefore not be certain that the intensity of the color-reaction is due entirely to hydrochloric acid alone, since lactic acid and hydrochloric acid may exist together in the same stomach-contents.

Practically in stomach work one wishes to know the presence or absence rather than the quantity of hydrochloric acid. By determining, first, the total acidity, and, second, the presence of hydrochloric acid by the Gunzberg test, we have secured the essential facts necessary to know in the diagnosis of stomach diseases.

I do not see how anyone can decry the value of chemical methods, and certainly I would protest against the remarks made at this and other meetings regarding the value of the chemical examination of the stomach-contents. Over eighty per cent of Osler's cases of cancer of the stomach show a total absence of hydrochloric acid. If for no other reason than this the chemical examination would be of value, because everyone knows that in the early stages of cancer of the stomach the diagnosis is difficult to make, and no stone should be left unturned to establish it.

We must make a diagnosis of this disease of the stomach early, so that the surgeon may have a chance to operate in the early stage. The only way to make an early diagnosis is to take into account the findings of the chemically examined contents. Eighty per cent of cases of cancer of the stomach have shown an absence of hydrochloric acid, and it is very certain that cancer of the stomach causes an alteration of the fluids, which gives us valuable knowledge in diagnosis. There are certain cases of neurasthenia which show an absence of hydrochloric acid. I remember a case of a man who was a marked neurasthenic, and at repeated examinations of the stomach-contents no hydrochloric acid was present, and the diagnosis of cancer was made. The history since then proved that the diagnosis of cancer of the stomach was not correct. In cases of ulcer of the stomach hyperacidity is the rule; however, an ulcer does not always show a marked hyperacidity.

While, therefore, there are no hard and fast rules to guide us in the diagnosis of diseases of the stomach from a study of the gastric findings, the analyses are of great value when studied in conjunction with the clinical histories of these cases.

Dr. L. A. Nippert: I wish to emphasize the posture of the patient during stomach examination. The recumbent position, with the stomach distended, is usually the best for diagnosis, but tumors of the upper part of that organ may escape discovery unless the patient is examined in a standing posture. By this means I have been able to make a diagnosis of carcinoma of the lesser curvature of the stomach, verified afterwards on the operating-table, in a patient who had been frequently examined, with negative results, in the recumbent position. Posture, therefore, is an important means in the diagnosis of the nature of obscure stomach troubles.

Dr. Soren P. Rees (Essayist): I wish to thank the gentlemen for contributing to the paper so materially by their discussion. One object in writing a paper on so general a subject

was to bring out discussion on various points that could not be mentioned in the paper; another object was the fact that on one hand we find bulky text-books full of complex methods that nearly stagger us if we try to follow them, while, on the other hand, we meet with physicians who ignore all laboratory methods, and do not try to make any diagnosis before commencing treatment. Between these two extremes the object was to call attention to some simple, short methods that might be used to good advantage when the others could not be employed.

In regard to dilatation of the stomach: the greater curvature is often found below the umbilicus without giving rise to any pathologic symptoms. A personal friend has investigated five cases in Pomerania where the diet is mostly sour milk, potatoes and salt herring, and in the five cases examined the stomach reached half way to the pubis, yet these people had perfect health. The test-breakfast disappeared in about one hour, and they had five or six passages a day from the bowels.

In regard to the difficulty of mapping out the stomach: I must say that by means of tartaric acid and soda, administered carefully in the way suggested, I do not remember any case during the year where one had any difficulty in mapping out the stomach. The method emphasized by Dr. Quinby is a very valuable aid. The examination of the urine is also important beyond determining any renal lesion, as the acidity of the urine varies with the acidity of the stomach-contents.

I would not, by mentioning this quick and simple test for determining the amount of hydrochloric acid, discourage the use of older tests. What we claim for this color-scale is that by means of it we have a very simple, short, and easily-made test. The stock solutions that we used in making up this little rack were prepared last year, and this morning, in order to have the colors fresh, it did not take us more than probably five or six minutes to add to each test-tube the required amount of reagent, and to complete the rack. It will hold good for a long time.

DILATATION OF THE STOMACH

CHRISTOPHER GRAHAM, B. S., M. D.
Rochester

From January 1, 1901, to January 1, 1902, there were 252 stomach-tests made at St. Mary's Hospital. Of this number 142 were male, 110 females; 85 had dilatation alone; in 25 prolapse was the marked condition, while in 25, prolapse and dilatation both were well in evidence. About 30 were diagnosed clinically as cancer, the diagnosis being corroborated in 18 by later operation. Gastro-enterostomy was performed twenty-eight times:

twenty for ulcer—of these thirteen were pyloric, giving more or less obstruction; three, lesser curvature near the pylorus, and two not located—four times for carcinoma; twice for valve-formation; once for perforating ulcer of the lesser curvature; and once for adhesions of the liver and pyloric region. Pylorectomy was performed six times, of which five were for cancer. Three pyloroplasties were performed: one for pylorus spasm and prolapse, another for ulcer, and a third for hyperchlorhydria. One ulcer was excised from the greater curvature.

Of the eighteen cancer cases operated upon, twelve were men. Among the ulcer cases that came to operation there was one more male than female. I am sure in our experience at St. Mary's Hospital the relation of male to female patients suffering from ulcer and cancer is fairly well given in the proportion that came for relief, 142-110.

Zenker has a strong following in the belief that most cancers of the stomach originate in ulcer areas. Of the eighteen patients operated upon for cancer, sixteen gave a history of ulcer running from one to fifteen years. In two no such history was obtained. In three the history of ulcer did not cover two years. By including the three cases of less than two years, we get 88.88 per cent of cancer preceded by ulcer history, or 72 per cent, dropping the three cases. Again, eleven of the cancerous growths were pyloric, four lesser curvature near the pylorus, two general, and one location not noted. Reckoning those near with those at the pylorus, and dropping the three general, some of which may have been pyloric in origin, we get 83.33 per cent of cancers pyloric in origin, or dropping the four at the lesser curvature, we get 61.11 per cent pyloric.

Further, of the ulcer operations, thirteen were pyloric, three lesser curvature near the pylorus, one greater curvature and two not located. Counting those near the pylorus with the pyloric we get 89.5 per cent of ulcers pyloric; or, omitting the three, we have 73.5 per cent pyloric. That is, 89.5 per cent of ulcers are pyloric, 83 per cent of cancers are pyloric, and 89 per cent of cancers are preceded by history of chronic ulcer.

Considering the 135 cases that showed more or less trouble, and the not large number that sought operative relief, one would be inclined to believe that diagnosis was deficient. The fact remains, however, that many cases

were diagnosticated as dilatation, with ulcer, cancer, or other accompanying trouble, and operation often advised, but not accepted, partly because the physician has not yet become bold enough to urge the truth sufficiently, and partly because the patients have not been educated to the point of appreciating the dangers of ulcers of the stomach as they have those of appendicitis.

In discussing etiology, symptoms, diagnosis, and treatment I shall not attempt to cover the field as that has been done by Pepper and Stengel, Osler, Billings, Einhorn, Musser, Steele, and a number of other able writers, rather shall I confine myself to the cases in hand, and the methods by which we have arrived at conclusions.

From the cases above cited and operated upon the etiology of dilatation points decisively to ulcer as the first great cause, cancer being a poor second, if indeed a second at all, unless we consider its secondary appearance in scar-tissue. If it is nearly the truth that 88 per cent of carcinoma is preceded by a history of ulcer,—a history that enables us to positively diagnosticate ulcer,—then the dilatation is due to ulcer, not to cancer. As a matter of fact, all the cases of stomach cancer that I have seen, postmortem or on the operating-table, tended to diminution of stomach volume. Perhaps one limited to the pylorus, and developing stenosis rather acutely, may produce dilatation, but as cancer rapidly extends, just so rapidly will volume diminish. The error is made, first, in not appreciating the condition when cancer is found developing upon ulcer-area, as primary ulcer and secondary carcinoma, and ascribing the dilatation to the latter. Again, cancer appearing in the scar of an old ulcer may be, and often is, rapid; acute stomach symptoms obtain,—pain, obstruction, vomiting; this heightens the picture, operation or postmortem shows cancer, and this, rather than ulcer, is heralded as the primary cause.

Chronic ulcer in any location usually results in dilatation, first, because relaxation follows the long-continued muscle excitation of acute ulcer; second, the motor insufficiency invites fermentation, and gas, being a constant factor, acts as a continual distending force, and the condition is hastened to an easy diagnostic point.

In chronic gastritis, less often in the acute and subacute form, there is diminished motor-power, changes in secretion of normal juices so that digestion suffers, bac-

terial fermentation and organic acids add to the burden. Gases develop and a weakened wall yields. The constant strain of large amounts of food and drink is a factor of some importance in dilatation.

Pericholecystitis (one case) with adhesions to the duodenum, followed by contraction, may so narrow the pylorus that dilatation results. Most cases of gastroptosis become dilated, the pyloric end first and most marked. A floating kidney must be a rare factor, rather is it a part of an enteroptotic condition, the two, stomach and kidney, prolapsing from the same cause. The stomach gradually dilates, first, because of its low position and hence greater distance to elevate food; second, angulation of pylorus (two cases) and an accompanying delay of food, and, third, fermentation and gas-formation due to the two preceding factors. Perhaps atony is here a factor, as nervous, thin, cachectic patients are usually the ones with enteroptosis. Hyperchlorhydria with spasm of the pylorus (one case) is an occasional cause. Hypersecretion and hyperacidity are often found, and some dilatation is the rule (two cases).

The symptoms of dilatation are those of motor-insufficiency and embrace chiefly those of chronic ulcer, cancer, and atonic muscular weakness. They are gas, bloating, distress, often reaching extreme pain, sour eructations, burning, weakness, vomiting, constipation, headache or distress in the head with loss of mental activity, depression, scanty urination. Vomiting of great quantities and at long intervals, occurs in extreme cases of dilatation and pyloric obstruction. With this latter a burning sensation precedes the vomiting, and relief follows until the stomach is again filled by ingesta or its own secretions. Wasting was found quite constantly and emaciation often extreme. A desire for food was present in the greater number of cases when ulcer was the cause, and a great craving was expressed by many; but fear of pain, gas, burning, and vomiting kept them from food. When cancer had developed to the fore, there was seldom a desire for food and often there was a feeling of repugnance. Blood in the vomitus, noted by the patient, was rather rare. The state of nutrition, shape of abdomen, peristaltic wave, and presence of tumor are important considerations.

The method pursued in reaching a diagnosis is as fol-

lows: First, take a careful history, especially relating to length of time, recurrence, degree and symptoms of stomach disturbance, which history, in a great majority of cases, points clearly to the nature of the trouble. Second, with the patient stripped, inspection, palpation, and percussion are carefully carried out, and with a general examination the first part of the work is done. Third, he is instructed to eat as freely as consistent at his evening meal, ana a laxative is ordered in many cases. Fourth he is to report at the hospital early the following morning, fasting, for his breakfast of bread and hot water. Unless there is a clear history of hypersecretion or marked retention, the stomach is not irrigated before the meal is given. Fifth, from one to one and one-half hours later, the stomach-tube is used. The chief factors sought are, first, retention of food; second, size and position of stomach; third, presence of tumor (often not found because of high position of pylorus); fourth, presence or absence of hydrochloric and lactic acids. The first two factors, together with an accurate history of time, relapses, and severity of symptoms, will usually place the diagnosis close, and are quite sufficient to divide the cases into two classes,—those for the surgeon and those for the internist.

In this series of cases we include prolapsed stomachs and those apparently within the normal size-limit, if retention can be demonstrated, holding that when such retention does exist, some degree of dilatation must be present.

It is a matter of comparative ease to outline the stomach as to size and position. Our method for years past has been as follows: With the stomach-tube in place, stomach empty, and patient flat on his back, the stomach is inflated by means of a Davidson's syringe. In emaciated patients, inspection is quite sufficient. Percussion and auscultatory percussion are usually easy and accurate. Only in patients with thick abdominal walls need the other factor be used, and that is direct auscultation by means of the bell of the stethoscope placed over the stomach. As the air is forced into the stomach its escape is noted by a sharp click or gurgle. Shift the bell of the stethoscope, and immediately you leave the stomach area, the peculiar sound is lost. This is easy and accurate, and applicable to all cases. Air usually escapes through the pylorus, but we have seen no bad symptoms from it,

neither trouble in easily inflating and holding the stomach to sufficient tension, nor any untoward effects from direct inflation of the stomach in several hundred instances. Care of course is to be exercised, especially when the history points to active trouble.

Treatment is both medical and surgical, but the latter offers by far the greater encouragement. The internist's field is chiefly one of prevention. Treat the wasting diseases that bring atony (general), anemia, and ulcer. It cannot be gainsaid that rest, diet, and thoughtful administration of iron, arsenic, and tonics generally, with attention to excretion, will often arrest distressing symptoms of hyperacidity, hypersecretion, and ulcer, and give permanent relief, but one must always bear in mind recurring tendencies, and be prepared to advise surgical interference. When in atony the stomach is large and motor insufficiency poor, when pyloric stenosis of any kind is advancing, when dilatation with severe irritation or hemorrhage due to ulcer is present, surgery, rest, and starvation promise the greatest good and often the only hope of relief; and the internist who holds the profession above barter should be quick to call to his aid a competent surgeon. What operation is to be done must be largely left to the surgeon, and frequently is decided after the primary incision is made. Gastro-enterostomy seems to have the broadest field of efficiency, as a means both of cure and amelioration. When the dilatation is due to non-malignant obstruction, gastro-enterostomy has been the operation of choice. Just what degree of danger remains in cases of ulcer, to late malignant degeneration and hemorrhage, has not been worked out, but that they are greatly lessened is established. The gastro-intestinal opening gives the food a new direction and frees the ulcer from irritation, giving the rest and a chance to heal. Excision at the time of operation would be scientific, but not always practicable. In cases (delayed diagnosis) of cancer when total extirpation is impossible, gastro-enterostomy prolongs life and relieves distress. Late complications, as closing of gastro-intestinal opening or retention of button in the stomach, must be kept in mind. It seems probable that many cases of dilatation due to active ulcer and spasm rather than to actual obstruction, do recover tone and again functionate normally after the rest given by gastro-enterostomy, and then the artificial opening tends

to closure, the old scar yields to the renewed irritation of food, and the same dangers appear. Therefore it would seem that the surgeon should look more carefully to all possible excisions, even when gastro-enterostomy or other procedure is undertaken. A retained button may subject the stomach to grave dangers, and only when an efficient absorbable button shall have been produced will gastro-enterostomy be closely ideal.

Of the 28 gastro-enterostomies performed at St. Mary's Hospital in 1901, 21 can be considered in the list of cured, 4 are improved, and 3 are dead.

Pylorectomy, with or without an accompanying gastro-enterostomy, ought to be an ideal treatment, and was satisfactory in the five operations performed in St. Mary's Hospital in 1901.

Pyloroplasty has its field of usefulness in selected cases and results are not disappointing. Of the three cases, two seemed cured, one improved. Other methods of operative relief, as gastroplication and divulsion of the pylorus, may find occasional application, but seem to want surgical backing. What is most needed to-day is not remedies to apply nor skill in applying, neither surgical procedures nor proficiency in execution, but, rather, a proper appreciation of the underlying pathological condition and its dangers, which appreciation will, I am sure, broaden the surgeon's field of usefulness and narrow that of the internist not one whit.

DISCUSSION

Dr. J. W. Andrews: I do not rise, by any means, to criticise the treatment of cases of ulcer and cancer of the stomach recommended in the paper, but I believe conservative surgery would tell us this, namely, not to be too ready to make a gastro-enterostomy in ulcer of the stomach, either acute or chronic. Those cases are amenable, many of them, to ordinary treatment, and to subject the patient to a gastro-enterostomy should be considered with a great deal of care and discretion on the part of the medical adviser before such an operation is recommended. A gastro-enterostomy is not a difficult operation to perform, especially where anastomosis is made with intestines with the anterior part of the stomach. But I would say this, too: very often in cases of ulcer of the stomach where a gastro-enterostomy is performed the patient gets well quicker, and the surgeon thinks his success is greater, and so it is. But it is often the case that this very patient could be cured without a gastro-enterostomy by practical medical treatment.

I was somewhat impressed at a consultation at which I was

present, but in which I did not participate, a little more than a year ago in Chicago. One of the parties consultant was Dr. Fitterer of the north side, who said it was a case of ulcer of the stomach, and some recommended gastro-enterostomy, but Dr. Fitterer said he believed it could be cured without, and he began treating the case. I watched it with a great deal of interest, and he did cure the case. In that very case some other members recommended, and would have performed, a gastro-enterostomy. In that case, if such an operation had been performed, the patient would have gotten well; but I must say there is danger in gastro-enterostomy; it is not without danger. No matter how careful, no matter how skillful you are in performing a gastro-enterostomy, some patients will die anyway. In cancer of the stomach—that is a different thing, but I am talking about an operation that will subject the patient to danger, and in this case the danger is much greater. It is often the case that they do not do well, and soon die instead of having their lives prolonged. In the little experience I have had there has been much excuse for one to resort to the operation of gastro-enterostomy. I do not pretend to say that my experience is worth anything, but I must have my conviction, and I do have it. It is this: As surgeons we are sometimes too radical in advising a patient to submit to an operation like a gastro-enterostomy, when under proper medical treatment a cure of the patient might be effected without surgical interference.

Dr. W. E. Rochford: I wish to confirm the views expressed by Dr. Andrews in the matter of operating upon cases of malignant diseases of the stomach. I believe that surgeons are not justified in operating upon cancer of the stomach, unless the patient is told that there is no possibility or hope of cure. A patient's consent should be gained before an operation of this kind is performed. When a patient comes to a doctor and is told an operation is the only thing that offers hope of recovery, such patient is anxious to take advantage of the last ray of hope that is held out to him, thinking there is a bare possibility that he may get well. If we tell our patients squarely and frankly that there is absolutely no chance of cure, and that at best it would only prolong life a little, if at all, I think not one patient in a hundred would submit to an operation of this character. Many are encouraged to perform a gastro-enterostomy because it is a simple operation. They wish to be considered as keeping in advance, and sometimes there is a good fee attached. There is not a case on record where a cure has been effected, or life prolonged for any great length of time. It makes no difference whether a man has performed 500 or 600 gastro-enterostomies.

As to the operations for ulcer of the stomach, I am of a different opinion. Here I believe good results are obtained from an operation. I have never seen any severe case of ulcer cured by medical treatment.

Dr. A. E. Benjamin: I was very much interested in Dr. Graham's paper. I believe he has had opportunities for observing and proving many things that men of more limited experience have not had. I think we can agree that a good reason

was outlined in the paper for operation in certain cases, especially to those of us who have had experience along this line. Gastro-enterostomy is the operation of choice in dilatation of the stomach.

I think the paper, as I understand it, was upon *dilatation* of the stomach. What produces it? It is due most frequently to obstruction of the pylorus because of cancer or benign growth, or it is due to a cicatrix caused by the healing of an ulcer. We cannot tell, before we operate, whether it is a cancer or a cicatrix from a healed ulcer.

I call to mind a few cases where we operated for supposed cancer.

Some of these cases have made remarkable recoveries, gaining in flesh and being apparently well to-day. One man, whom I recall, had a marked dilatation of the stomach. It extended far below the umbilicus. There was an obstruction in the pyloric opening, so that no food, except in a liquid form, could pass through. There was a thickening of the stomach-wall. You could see the stomach contract in the endeavor to force the food through the pylorus. I do not know of any patient that is more grateful to me than this man, after having sought medical aid in various parts of the country. He feels perfectly well. I told his wife I thought it was a cancerous growth, but he has no symptoms of anything of the kind at the present time. In another case a great mass was found. This was produced by massage given by an Osteopath, who claimed he was rubbing the bile out of the liver. The patient was very much emaciated, weighing only 115 pounds at the time of the operation. A consultation was had, and an operation advised. There was a growth between the duodenum and the stomach, too large to remove.

A gastro-enterostomy was done. This man gained up to 180 pounds, and is physically well.

I think we should recognize, as early as possible, the necessity for an operation. I believe the operation of gastro-enterostomy has very little risk. As Dr. Rochford says, if we can make the diagnosis of cancer, I think the friends should be told; but, if we are not certain as to the cancer, a gastro-enterostomy is a simple procedure, and we frequently get good results. If it is nothing but a benign growth, we shall cure our patient, and perhaps, prevent the growth of a cancer.

Dr. C. H. Mayo: I am glad to hear the remarks of Dr. Benjamin. Of course there is no question but what the conclusions given in Dr. Graham's paper are correct in their findings. I think we all, in the last few years, have had a tendency to neglect clinical findings and the history of cases in the examination and depend too much upon laboratory experiments. Pelvic surgery went through this same history that stomach work is now going through. They have a great fear of operations of the stomach. To-day we can make our diagnosis and relieve those conditions. Many cases of ulcer can be cured by the physician, with ordinary care. They will even get along themselves, but they recur.

The point was brought up in regard to operation for ulcer. An acute ulcer can be cured by gastro-enterostomy; yet it is not always advisable in the first attack. It is in the recurrent

attack where we want to do the operation. If you cure that ulcer by doing gastro-enterostomy, the opening may close or give later trouble from duodenal regurgitation.

The point was brought up that Osler found the lack of acid in about eighty per cent of his cancer cases. Now, if there is any one thing we are short on, it is our diagnosis of cancer of the stomach. Those cases come in, and they are too late. They have a big tumor, and yet they have been doctoring for twenty years. They have had a history of ulcer; they have been treated by everybody, and did not get relief; and they finally get to the point of eating sparingly, and taking care of themselves, and when they come to you they have an enormous cancer. Those eighty per cent would show a lack of acid; it is the other twenty per cent we want to get after. You can feel the tumor through their clothes, and through lack of early diagnosis there are many cases of cancer that are entirely beyond the possibility of relief when they come to the doctor. A large proportion of cancers were originally chronic ulcers, and the ulcers in the majority of the cases are in the pyloric region, the food being jammed against the pylorus, keeping up a chronic irritation, and thus we have a history of chronic ulcer in very many cases. If that ulcer will break down or degenerate and give cancer, it is better to try and relieve it by a gastro-enterostomy. We have had about 110 gastro-enterostomies.

Altogether, I think too much stress has been laid upon the test-medium. Those cases come in, and give their own history sufficient for operation. You want to make all tests, but only to corroborate the clinical examination. There is a gentleman in this room who had a gastro-enterostomy, and from a number of examinations that showed no acid it was called cancer, when it was chronic ulcer. After operation he gained sixty pounds in a few months. Another point: Physicians treat these cases first; they are put through a course of clinical medicine; then they come into the hands of the surgeon, and the physicians do not see the surgical operation of their own cases. I think it would be the best thing in the world if a man who has the ability to make a diagnosis would follow up these particular cases and see what the accompanying clinical findings are, for then we would have an education in the right line. They do not get the findings connected with the diagnoses in these cases; they do not have the impression in their own minds, and they do not know exactly what is the matter. If they would follow these cases, it would be the best of clinical teaching.

Dr. J. W. Bell: Clinically and pathologically we can divide all cases of enlarged stomach into two distinct groups; one of these belongs to the surgeon, and the other belongs distinctly to the medical man. Dilatation of the stomach due to obstruction belongs to the surgeon—no one should question that. The second group of cases, non-obstructive in character, respond well to medical treatment.

As to the question of operation for acute ulcer, I think few of us would willingly submit ourselves to the surgeon for operation until we had given medical treatment a trial. The management and treatment of acute ulcer is eminently satisfactory in the hands of medical men, consequently there is no reason, it seems to me, why an acute ulcer should be operated upon. I refer especially to the primary attack. In the majority of cases of acute ulcer a cure can be effected, provided the patient can be absolutely controlled as to rest and diet.

I agree with the essayist in the statement that chronic ulcer and recurrent ulcer certainly call for surgical consideration. Much difference of opinion exists as to the location of gastric ulcer. It is probable that a majority—not more than that—will be found at or near the pylorus. It is not an easy task to locate an ulcer after opening the abdomen. I believe the stubborn, chronic ulcer belongs to the surgeon, and the recurrent ulcer in some instances, but the acute ulcer, in its primary form, is best managed medically.

I am sure we all feel greatly indebted to the doctor for his valuable paper.

Dr. C. H. Mayo: I would like to correct one wrong impression that might have been made in reference to acute ulcer. I said it can be operated upon, but I do not favor operation in acute ulcer.

Dr. Warren H. Little: I would like to ask Dr. Mayo where he gets his statistics when he says that eighty to ninety per cent of cancers were originally ulcers of the stomach, or how statistics of that kind can be arrived at. I have thought it sometimes difficult to make a diagnosis of cancer.

Dr. C. Graham: These statistics were arrived at from the operations performed. These operations were done in 1901 in St. Mary's Hospital at Rochester. These statistics are the findings after the operation.

Dr. Geo. D. Head: I think Dr. Graham is to be congratulated upon setting before us so splendid an array of statistics. There are one or two points in the paper which disagree with the ideas of previous writers. In McCrae's and Osler's monograph the distinct statement is made that in the majority of cases the history of cancer is of short duration. This is contrary to what has been taught for years by most clinicians, but the large number of cases which have been analyzed by Dr. McCrae and Dr. Osler compel us to accept the conclusion. In over seventy-five per cent of their cases the patient gave no history of chronic indigestion previous to the onset of cancer symptoms. If this be true, I can scarcely see how Dr. Graham's conclusions are correct, inasmuch as ulcer is a disease preceded by chronic symptoms of indigestion. I desire to ask the reason for this statement, and if in such a large percentage of cases in which gastro-enterostomy was done the ulcer was absolutely

located and recognized as ulcer. In the second place, I would like to ask how the author distinguished between the possible secondary ulceration of cancer and primary ulcer, and how he is sure that cancer was superimposed upon the ulcer. I would also like to have a statement made by the author as to the cure by gastro-enterostomy.

We know that a certain percentage of cases of ulcer can be cured by rest and milk diet. I think fifty per cent of the cases are reported as cured by this method. Are we sure that fifty per cent of the cases of ulcer can be cured by gastro-enterostomy? If so, let us have the evidence presented. How long have these cases of ulcer been followed since operation? How long has the operation of gastro-enterostomy been done systematically, and how many cases has the author analyzed? This is not in the nature of a criticism, but it simply occurred to me that in this operation, advocated for the cure of ulcer, we ought to be careful and have a large array of statistics before we accept it as the best means of curing the disease.

Dr. A. E. Benjamin: I wish the questions of Dr. Head might be answered.

Dr. C. H. Mayo: The doctor described the treatment of ulcer very clearly. There were eighteen cases submitted for operation which proved to be cancer, and of those eighteen cases sixteen gave a history of chronic ulcer. These statistics are from our own work. It is true that very few are operated on for acute ulcer. There were a few cases presented some time ago, but they can be cured, unless there is immediate dangerous hemorrhage, by ordinary medical means. There have been few operations for acute ulcer, but in all those cases the stomach is small, and while it cures ulcer the opening will close up or reduce after the ulcer heals. Before you decide to do a gastro-enterostomy in acute cases, you make an incision and explore the entire interior of the stomach, and in that way you will be able to excise an acute ulcer and close the opening. In the early stage a surgeon may often go too far—he may step over the boundary line in his enthusiasm.

Dr. C. Graham (Essayist): So far as the first speaker is concerned, I think the paper explained the matter fully. It is always well to give relief, if only for a year. In many cases you cannot positively tell the patient he is suffering from ulcer or cancer until you have an operation to find out. You may give relief for a long time if you do not give it permanently.

I cannot answer the questions asked by Dr. Head, because I did not do the surgery, but I know that a great many cases operated on by gastro-enterostomy are all right yet, whether it was cancer or whether it was benign obstruction of the pylorus.

CHLOROSIS

GEO. DOUGLAS HEAD, B. S., M. D.
Minneapolis

In a clinical experience too limited to speak with any degree of authority, the writer has gathered notes of twenty cases of chlorosis, and has seen many more, which, unfortunately, cannot be utilized for study, since no blood examinations were made to confirm or deny the diagnosis.

Your attention is directed to the study of these cases from the standpoint (1) of symptoms, (2) of differential diagnosis, and (3) of treatment.

SYMPTOMS

The chart here shown gives the age, sex, occupation, chief symptoms, and blood findings in each case.

Chlorosis is generally a disease of well defined symptoms, which exhibit themselves in certain types or symptom-groups, dependent, in part, upon the make-up of the individual, and, in part, upon the degree of anemia. The commonest type seen is in those cases which complain of breathlessness on exertion, cardiac palpitation, attacks of dizziness, and loss of strength and color. These we can call the cardiac type of the disease. Of the twenty cases in this series, the majority fall into this group.

The cases with loss of color, poor appetite, distress after eating, belching of gas, coated tongue, and constipation, might, with propriety, be classed as the gastro-intestinal type of chlorosis. Cases 11 and 12 are examples of this group.

In a third series of cases, the chief symptoms are referred to disturbances of menstruation. The important symptom in Case 10, and the one for which relief was sought, was amenorrhea.

Cases with pale color, edema of lower limbs, dyspnea on exertion, and loss of strength, might be grouped as the renal type of chlorosis.

In the nervous group we could include those in whom the loss of hemoglobin manifests itself in symptoms of hysteria, melancholia and intercostal neuralgia,

CASES OF CHLOROSIS

Case No.	Name	Age	Occupation	Symptoms and Complaints		Hemoglobin Per Cent	Red Blood Count
1	Mary C.	19	dress-maker	Breathlessness menstrual disturbance, pale color, constipation		.40	3,800,000
2	Cora A.	18	work in shoe factory	Breathlessness on exertion, loss of strength and weight, cough	Jan. 27	.52	6,000,000
					Feb. 12	.66	
					May 4	.65	
					June 6	.90	
					July 28	.70	
3	Mrs. B.	40	house-wife	Gradual oncoming paleness and loss of strength		.40	4,400,000
4	Miss S.	28	book-keeper	Pale color, breathlessness on exertion, many reccurring attacks of boils on body and limbs	Dec. 20	.65	4,200,000
					Dec. 28	.73	
					Jan. 7	.68	
					Jan. 27	.70	
					Feb. 11	.80	
5	Mary N.	16	servant	Breathlessness on exertion, cardiac palpitation, pale color, constipation, loss of energy	Sept. 23	.22	3,932,000
					Oct. 10	.45	
					Oct. 21	.52	
					Nov. 21	.75	
6	Willie W.	8	school boy	Gradual oncoming paleness	Dec. 28	.40	5,200,000
					Mar. 2	.75	
					Mar. 18	.74	
					Mar. 31	.68	
7	Mary D.	25	servant	Pale color, breathlessness on exertion, swelling of limbs, dizzy spells, irregular menstruation		.45	.....
8	Miss S.	18	servant	Breathlessness on exertion, oppression in chest irregular menstruation, loss of appetite		.49	.....
9	Miss O.	19	at home	Breathlessness on exertion, cardiac palpitation constipation, discharge from the ear, pale color	Mar. 19	.46	4,280,000
					Apr. 19	.67	
					Apr. 27	.78	
10	Miss P.	18	servant	Amenorrhea, palpitation of heart, headache, pale color	Jan. 22	.38	.....
					Jan. 31	.65	
11	Mrs. G.	40	house-wife	Poor appetite, belching of gas, melancholia, constipation, pale color	Oct. 4	.67	4,760,000
					Oct. 9	.78	
					Oct. 16	.72	
					Oct. 24	.85	
					Nov. 8	.92	

CASES OF CHLOROSIS

Case No.	Name	Age	Occupation	Symptoms and Complaints	Hemoglobin Per Cent.	Red Blood Count
12	Miss M	19	stenographer	Pale color, fainting spells, loss of appetite, melancholia ..... Aug. 23	.65	4,400,000
				Aug. 30	.75	
				Sept. 6	.79	
				Sept. 12	.80	
				Sept. 27	.84	
13	Miss McC.	18	at home	Pale color, breathlessness on exertion, loss of weight, poor appetite, hysterical attacks, rises in temperature ..... Sept. 2	.48	5,115,000
				Sept. 14	.75	
				Sept. 29	.73	
				Oct. 13	.78	
				Oct. 31	.83	
				Nov. 28	.80	
				Mar. 21	.87	
14	Miss Z.	18	attendant	Breathlessness on exertion, pale color, loss of appetite, headache, constipation.....	.38	.....
15	Tillie R.	14	cash girl	Headache, loss of color, cardiac palpitation, pains in back, breathlessness on exertion ..... Nov. 11	.30	4,100,000
				Nov. 28	.40	
16	Alice D.	16	cash girl	Breathlessness on exertion, headache, cough, irregular menstruation, pale color... Dec. 16	.43	.....
				Jan. 3	.55	
17	Miss B.	17	factory girl	Pale color, headache, sleeplessness, breathlessness on exertion ..... Sept. 6	.48	4,972,000
				Sept. 21	.62	
				Oct. 15	.80	
18	Mrs. B.	23	servant	Swelling of limbs, cramps in legs, constipation, breathlessness on exertion, cough, pale color, cardiac palpitation..... Jan. 3	.17	2,350,000
				Jan. 10	.30	
				Jan. 25	.50	
				Feb. 20	.72	
19	Miss H.	16	school girl	Breathlessness on exertion, fever, venous thrombosis, loss in weight, bed-ridden. May 21	.44	3,200,000 (whites, 6,200)
				June 4	.55	
20	Miss C.	32	teacher	Breathlessness on exertion, fainting attacks, dizzness, hemiplegia..... Nov. 15	.55	3,120,000
				Nov. 29	.55	
				Dec. 19	.72	
				Jan. 25	.87	
				Sept. 1	.86	
				June, 1901	.75	

NOTE.—The table shows but one male and one married person.

etc. Cases 12 and 13 are examples of the last-named type.

Taking up the study of the cases from the standpoint of individual symptoms, that of loss of color in skin and mucous membranes is the most general complaint of the patient, and the most striking feature to the observer. Of the twenty cases, only four failed in giving the history, to mention the loss of color, and in every case the paleness of the mucous membranes was apparent to the clinician. On the contrary, women of light complexion and auburn hair often look chlorotic when the blood examination shows no marked diminution in hemoglobin. In dealing with such cases, it is our experience that the blood examination has corrected more diagnoses of suspected chlorosis than it has established of chlorosis where it was not suspected.

Breathlessness on exertion was present in 70 per cent of the cases. It was one of the early complaints of the patient, and was usually noticed on climbing stairs. With the decrease in hemoglobin the dyspnea on exertion increases and may totally incapacitate the patient.

Case 18, with a hemoglobin estimate of 17 per cent, was bed-ridden, and the slightest exertion caused exhaustion. A feeling of oppression in the chest is sometimes associated with the breathlessness, as in Case 8.

Palpitation of the heart was complained of in five cases. These had a hemoglobin of 22, 46, 38, 30, and 17 per cent respectively. In none of the patients where the hemoglobin estimate was 50 per cent or over, was cardiac palpitation present. It would seem, therefore, that the presence of cardiac palpitation, as a symptom in chlorosis, is directly dependent upon the degree of anemia.

In two of the cases, Nos. 7 and 18, swelling of the lower limbs was a prominent symptom. One of these cases had a hemoglobin estimate of 17 per cent, the other of 45 per cent. Both had systolic blowing murmurs at the base of the heart.

Menstrual disturbances were present in 25 per cent of the cases. These may take the form of simple irregularity, or of amenorrhea or menorrhagia. The writer remembers a case of menorrhagia in a young woman which baffled the treatment of a number of surgeons for

more than a year, until the blood was examined and the chlorosis, with its attending menorrhagia, was cured by iron.

That these disturbances of menstruation were not caused necessarily by the low per cent of hemoglobin in the blood is proven by the fact that Cases 5 and 18, having hemoglobin estimates of 22 and 17 per cent, respectively, had no menstrual irregularity.

Constipation was noted in seven cases.

Of the other symptoms, headache was present in five cases, and cough in three cases, in one of which it led to the diagnosis of pulmonary tuberculosis; poor appetite, in four cases; and dizzy spells, fainting attacks, cramps in limbs, melancholia, chest and back pains, and loss of weight were noted in others.

In one case, No. 4, recurring attacks of boils on the body and limbs were the chief symptoms, and baffled all medication until Blaud's pill was systematically given.

In Case 19, venous thromboses were present in the veins of the left calf and the right epigastric vein. This case was accompanied by much fever, and was of prolonged course.

Case No. 6 was a boy of eight years of age. His chief symptom was paleness of skin and mucous membranes. The hemoglobin estimate of 40 per cent, the red count of 5,200,000, and the recovery on iron, established the diagnosis.

One always views with suspicion a diagnosis of chlorosis in women of middle life, but cases No. 3 and 11, in women of 40 years of age, could not be classified elsewhere on account of the clinical course and blood findings.

Outside the color of the skin and mucous membranes and the blood findings, the chief objective symptoms noted were the murmurs heard over the heart and the vessels of the neck. Six of our twenty cases had systolic blowing murmurs in the pulmonary area, and one had a systolic murmur in the second left intercostal space, and a non-transmitted systolic murmur at the apex.

Cases of chlorosis, with systolic murmurs at the aortic and tricuspid valves, have been described, but must be infrequent.

DIAGNOSIS

Chlorosis is a disease usually easy of recognition. One is more likely to suspect its existence when it is absent than to overlook its presence. The cases with cough, pains in the chest, dyspnea on exertion, loss of strength, pale color, and occasional sweats, suggest pulmonary tuberculosis; but the negative chest findings, absence of fever and the blood examination will rule out this disease in most instances. Too much stress cannot be laid upon the fact that the anemia of tuberculosis is generally apparent rather than real. The patients have pale faces and white mucous membranes, but there is little loss of hemoglobin or red cells until late in the disease.

Case 18 is an illustration of an error in diagnosis between chlorosis and pulmonary tuberculosis. Mrs. B——, aged 23, married. Previous history uneventful until two months ago, when she began to grow pale, have a night cough, loss of appetite and weight. Her color and cough grew worse until she was scarcely able to walk about. Cramps came on in her limbs, and she had sweats at night and palpitation of the heart. There was no fever. The physician whom she consulted said she had consumption. She came to the clinic in a carriage, and was carried to the consultation-room by friends. Her color was deathly pale, and she had an anxious look of a very sick person. On examination, the lungs were negative, a systolic blowing murmur was heard in the pulmonary area, and the blood showed 17 per cent hemoglobin and 2,350,000 red cells. A diagnosis of chlorosis was made, and in seven weeks the patient walked out of the clinic with red cheeks and restored health.

The cases with dyspnea on exertion, pasty complexion, swollen limbs, puffed facial aspect, and fullness under the eyes, suggest nephritis. But the urine of chlorotics is normal, while that of Bright's disease usually contains albumin and casts.

Cases with cardiac murmurs, breathlessness on exertion, palpitation of the heart, and pale color and fainting attacks, suggest organic heart disease. The soft blowing systolic murmur, heard in the base area of the heart, occasions little difficulty. It is those cases of chlorosis

in which murmurs appear at the mitral and aortic areas that leave the clinician in doubt. According to Sansom's figures, these comprise 27 per cent of the total number of cases with cardiac murmurs.

With a history of chorea or articular rheumatism, one should be slow in making a diagnosis of chlorosis, since very many young women with organic heart disease have the bloodless appearance and color of chlorosis. The danger in some cases is not so much in calling chlorosis organic heart disease, as it is in calling organic heart disease chlorosis.

Loss of appetite, indigestion, coated tongue, and pale color often suggest gastro-intestinal disease. In such cases, the color of the patient arouses our suspicions, and the blood examination dispels our doubts.

Gastric or duodenal ulcer, with repeated small hemorrhages, gives to some young women the appearance of chlorosis. Where the symptoms of ulcer are latent, the blood examination holds the key to the diagnosis. When ulcer complicates chlorosis, reliance must be placed on the history, gastric findings, and presence of blood in vomit or stools. The writer has seen a case of bleeding hemorrhoids in a young woman which gave a perfect clinical picture of chlorosis. The blood examination, however, pointed to a secondary hemorrhage, and, on more careful examination, the bleeding pile was located.

Cases of chlorosis, with multiple thrombi, suggest ulcerative endocarditis. The color of the skin, cardiac murmurs, irritable heart, distended pulsating veins in the neck, fever, loss of weight and strength, seen in both diseases, make a confusing picture. Ulcerative endocarditis occurs usually in middle life. The anemia it causes is of the secondary type. Micro-organisms are usually found in the blood. The spleen is enlarged and symptoms of embolic foci in internal organs may occur. In a case of thrombosis of veins complicating chlorosis seen by the writer, no leucocytosis was present. In ulcerative endocarditis, leucocytosis is the rule. This latter point may be of some advantage in the differential diagnosis of these two diseases.

While chlorosis is a disease of young women, it occasionally occurs in women of middle life and here is likely to be confused with pernicious anemia. In Case

3, the diagnosis of pernicious anemia was suspected, but the blood examination proved the contrary.

Cases of chlorosis, with pronounced nervous symptoms, sometimes leading to a diagnosis of hysteria, the blood condition being lost sight of, are occasionally encountered. Case 13 is an illustration. Miss McC——, aged 18; nervous from a child; no chorea; of late had been growing pale. Upon returning home from a ride during which she became excited, she expressed herself as feeling sick, and went to bed. Within a short time she began to tremble, her arms and legs to jerk, and she cried and laughed by turns. Her parents could not control her, and sent for medical aid. On examination, the girl seemed very nervous and excited. Her arms and legs were in constant motion and jerked in a convulsive manner. One minute she would cry, and the next laugh hysterically. She had a temperature of 102°; pulse 110; her heart beat tumultuously; there was a systolic murmur over pulmonary area, and a *bruit du diable* in vessels of the neck. After a hypodermic of apomorphin, she vomited, quieted down, and went to sleep. The day following she still had some fever, and a badly coated tongue, and the convulsive movements in the limbs continued, giving the picture of an acute chorea. She was, however, more quiet. Becoming frightened at a thunderstorm the following day, her condition became much worse, and for nearly two weeks the jerking in limbs and high nervous state continued.

On the third day of her attack a blood examination was made. The hemoglobin was 48 per cent; red, 5,115,000. The diagnosis of chlorosis, complicated by hysteria, was made. She was put on Blaud's pill, and in five weeks' time her pale color, systolic pulmonary murmur, and hysterical symptoms were gone.

TREATMENT

In his excellent book upon anemia, Byron Bramwell makes this statement: "I have, I think, obtained greater credit and reputation from the treatment of severe and obstinate cases of chlorosis, both in private and hospital practice, than from the treatment of any other disease."

Chlorosis is a curable disease—as curable as malaria with quinine. The essential points in its treatment

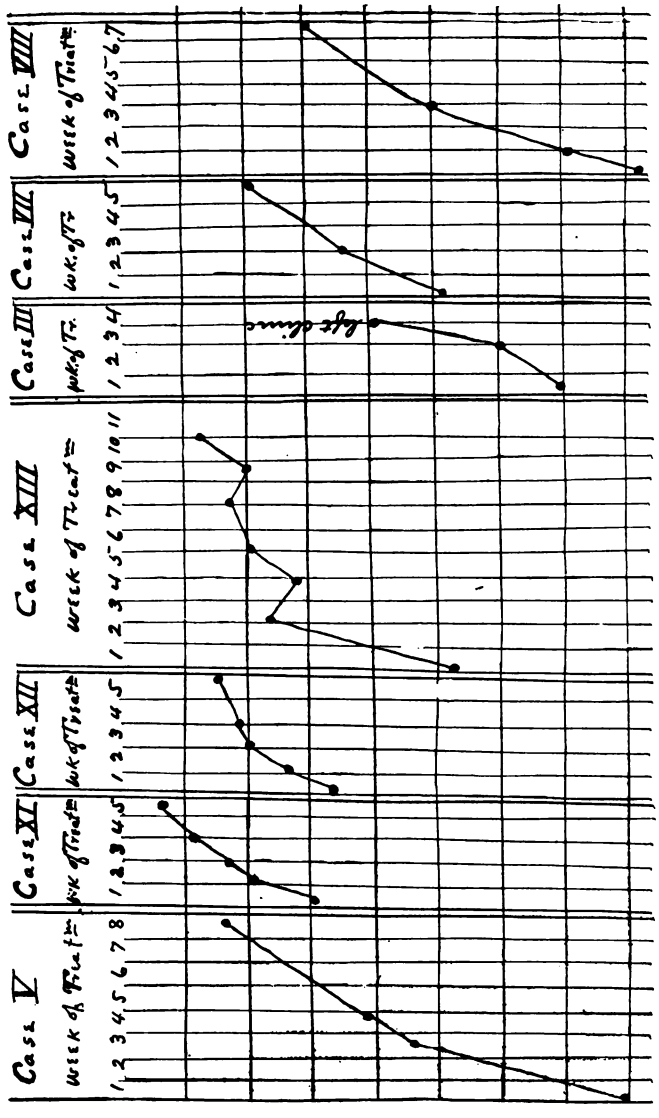
are (1) rest, (2) regulation of diet and bowels, (3) Blaud's pill.

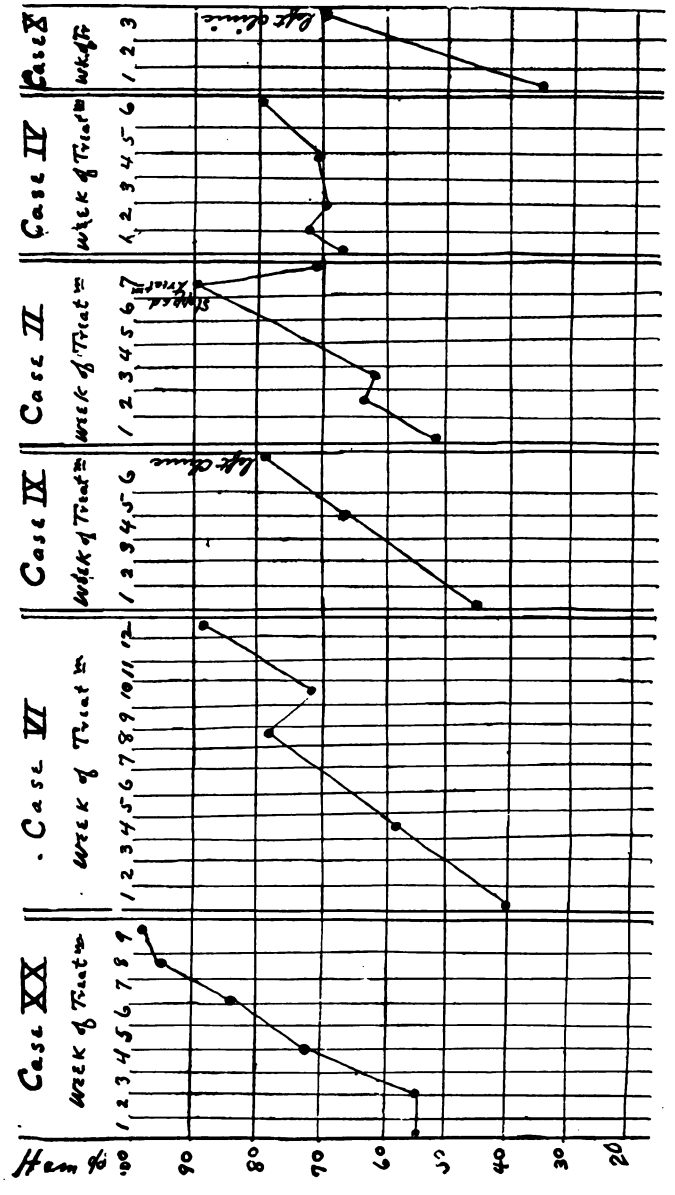
That the rest should be in bed is important, but not necessary. Many cases respond well to treatment while up and about. What is of greatest importance is that the patient should have rest from her occupation, freedom from nervous care and worry, and change of surroundings. The shop girl or factory girl must stop work, and go out into the open air. The school girl must cease study, and take out-of-door exercise. The woman who is too actively engaged in social duties must cast off her social life, and be relieved of all excitement. The recovery of most patients will be more rapid if they can be kept in bed for the first three or four weeks.

Attention to diet and the regulation of the bowels is the second essential in treatment. The ordinary mixed diet of milk, eggs, plenty of beef-steak, fish, vegetables, and fruit may be allowed. Sweets, acid fruits, and pastry must be avoided. If the patient has a badly coated tongue and little or no appetite, the gastro-intestinal tract must receive careful attention. It must be remembered, however, that most of the dyspeptic symptoms of chlorotics are dependent upon the blood condition, and will improve with the rise in hemoglobin. To clear off the tongue, a rigid liquid diet and a saline in the morning before breakfast is good treatment. For the constipation, the "A., B. and S." pill at night, or a mineral water in the morning, and abdominal massage are valuable.

Where chlorosis is complicated by ulcer of the stomach, the patient should be put to bed and fed on milk, raw beef, beef juice, and cream soups.

The essential part of the treatment, when once the diagnosis is made, is the administration of iron. Allbutt's words, paraphrased from a statement of Osler's concerning malaria, should be taken to heart by every practitioner of medicine: "The physician who cannot treat chlorosis successfully with iron should abandon the practice of medicine." This unceasing therapeutical unrest, this turning from one drug to another, in the treatment of chlorosis, can be but an expression of ignorance or indifference. We do not need "hemaboloids," albuminates of iron, glycerine extracts of bone marrow, etc., in the treatment of chlorosis or of any


Case V
Week of Treat.
1 2 3 4 5 6 7 8
Case XI
Wk. of Treat.
1 2 3 4 5
Case XII
Wk. of Treat.
1 2 3 4 5
Case XIII
Week of Treat.
1 2 3 4 5 6 7 8 9 10 11
Case III
Wks. of Tr.
1 2 3 4
Case VII
Wks. of Tr.
1 2 3 4 5
Case VIII
Week of Treat.
1 2 3 4 5 6 7


Case XX
Week of Treat'm
Case VI
Week of Treat'm
Case IX
Week of Treat'm
Left clinic
Case II
Week of Treat'm
Stopped Treat'm
Case IV
Week of Treat'm
Case X
Week of Treat'm
Left clinic
Hem %
100
90
80
70
60
50
40
30
20

anemia where there is a deficiency of hemoglobin. The writer has prepared a chart, showing the effect of Blaud's pill upon the hemoglobin per cent in the cases of chlorosis, of which he has record. (See chart.) You will note that every case tells one and the same story: more iron, higher per cent of hemoglobin. Blaud's pill is the one preparation of iron upon which reliance should be placed in the treatment of the disease. The pills should be made fresh by the druggist. None of the manufactured articles give the best results. They are too hard and old. They are given, one three times a day the first week, two three times a day the second week, three three times a day the third week, four three times a day the fourth week, and five three times a day the fifth week.

Once a week the patient comes to the office for a blood examination. If at the end of the fifth week the hemoglobin has reached 80-85 per cent, the pills are decreased in the same order and time in which they were increased, until one pill three times a day is reached. This dosage should be continued for at least two months. No patient is well until the hemoglobin rises to 85-90 per cent (Von Fleischl hemoglobinometer). A higher per cent than this is difficult to secure in chlorotics. A patient with 35 per cent of hemoglobin in her blood, when coming under observation, will usually be free from symptoms when the hemoglobin reaches 65 to 70 per cent. At this point there is temptation to stop treatment, or continue it in an indifferent manner. This is a great mistake. To stop the treatment of patients with chlorosis because they feel well is as fallacious as to discontinue the administration of mercury in syphilis the moment the sore throat, rash, and headaches have disappeared. The cases which have relapsed in my hands, with one exception, have been those in which the patient ceased treatment when the hemoglobin reached 65-75 per cent.

The secret of keeping patients under treatment lies, first, in making known to the patient the time necessary to complete the cure, and, second, making careful hemoglobin estimates from week to week. Osler persists in giving iron for three months. Bramwell continues small doses for several months.

Some patients complain of the iron disturbing the

stomach. If the tongue is clean, the iron should be continued until the anemia is relieved, even though it gives discomfort. If, after the relief of the anemia, the indigestion and gastric disturbances continue, ulcer, hyperacidity, or dilatation may be present and require appropriate treatment. Some patients do not respond as promptly as others to the iron. In general, those with the lowest hemoglobin per cent show the most pronounced effects of the treatment. Some patients require larger doses over a longer time to accomplish the results which smaller doses over a shorter time will produce in others. Once sure of the diagnosis, there is practically no limit to which one may go in the quantity of iron given. Bramwell has given the equivalent of ninety Blaud's pills a day in persistent cases.

The chief elements of success in the treatment of the disease are accuracy of diagnosis and persistence in the administration of iron.

DISCUSSION

Dr. J. W. Andrews: If all who have listened to this paper go home convinced of what Dr. Head emphasized in relation to the diagnosis of chlorosis, I think we shall feel that his time was well spent in preparing and reading the paper. We are too liable as physicians to jump at a diagnosis. We are often not careful enough and systematic enough in our examinations, and how often is it true that patients come to us and we diagnose a case as chlorosis or anemia, and give iron and arsenic, without feeling confident ourselves as to whether we have made a correct diagnosis or not? As. Dr. Head has remarked, I believe, in the paper, it is sometimes quite possible to diagnose a case of chlorosis correctly by symptoms, but how often does it happen that light-haired young women look chlorotic when an examination shows that the hemoglobin is normal? And how unjust it would be to give a patient iron or arsenic, or anything else we may give, without being definite as to our diagnosis? I hope we may all learn this lesson, namely, to test the blood when we suspect chlorosis, and then we can know very positively as to whether our diagnosis is correct or not.

Dr. C. A. Kelsey: I understood the author of this interesting paper to state that there is only one preparation of iron to be used. I would like to know why this particular preparation is so strongly emphasized. Also, in Case 11 (referring to the chart), there seems to be a drop in the second line, if I read it correctly, from 90 down to 70, and that seems to be

where the patient was left. I am interested to know the cause of this fall in hemoglobin.

Dr. H. B. Sweetser: It seems to me a pity that a paper of this kind should go by without more discussion. A paper so ably written shows too much thought, and teaches us too much, to be passed by without comment. I am free to confess that all of the cases of anemia that I have treated, I have treated, until lately, simply on the diagnosis of anemia. I would like to ask Dr. Head whether iron is the only drug we can use in cases of chlorosis, and whether we can use arsenic. I have had several cases where arsenic has done very much more good than iron. In cases of secondary anemia from hemorrhage of the stomach, arsenic has done very much better in my practice than iron. In pernicious anemia, very notably in one case where the blood-count showed only about a million and a quarter red-blood cells, the reaction under arsenic was very marked, so the patient, whom we treated two years ago under hypodermic injection of arsenate of soda, gave a red-blood count afterwards of nearly four million.

There was another point in the paper that interested me extremely, and that is in regard to those cases of chlorosis that are accompanied by an hemorrhagic diathesis. One patient whom I saw was curetted, this stopping the hemorrhage for about two months, when it returned again, and then the patient bled for about four months continuously and the number of red-blood cells decreased in a marked degree. In that patient the iron increased the metrorrhagia. We then curetted again, Dr. Burton assisting, and he suspected that there might be a small fibroid present which caused the hemorrhage. The patient was curetted three times without result; and every time we attempted to treat the blood condition she got worse, because the metrorrhagia became abnormally profuse and continuous. She was then put on thyroid-extract tablets, one three times a day, which very promptly controlled the hemorrhage. Since that time (two years ago) she begins to take the thyroid on the first day of menstruation, and continues it throughout the period. She never flows now more than three or four days nor between periods. Her condition has changed from one of profound anemia, with dyspnea, palpitation, etc., to that of fair health, and she is able to attend to her affairs satisfactorily. There has been no constitutional treatment directed to the anemia directly.

Dr. E. J. Brown: I would like to ask Dr. Head whether he has ever experimented in cases of anemia with the simple administration of small doses of sulphate of soda without iron?

The Chairman: I am in accord with Dr. Sweetser that a paper of this character that has been so carefully prepared, deserves a free discussion, and I would like to hear from anyone who has anything to say on this paper before Dr. Head closes the discussion.

Dr. Geo. D. Head (Essayist): I wish to thank the members for so kindly discussing the paper.

Dr. Kelsey picked out only one of the defects in the chart. There are others; for example, in a number of the cases the hemoglobin percentage did not reach the figure 90. The explanation of this, as well as the reason for the drop in that one case Dr. Kelsey asks about, is this: In the case in particular that Dr. Kelsey has spoken of, the patient ceased treatment when 90 per cent was reached. Instead of continuing the Blaud's pill, as should have been done for two or more months, the patient ceased to take the pills, and there was a drop in the hemoglobin. The reason why, in a number of the cases, the hemoglobin did not reach 85 to 90 per cent is that quite a percentage of them were not private cases, but cases in the hospital clinic and free dispensary, and the patients left us and ceased treatment as soon as they began to feel better. You will note a number of them where the hemoglobin is 70 to 80 per cent. These patients felt well, and seeing no need for coming longer, they left the clinics. This is the reason why these cases did not show a rise in the normal, as they would have shown, had the treatment been continued.

I have a right to insist upon the use of one preparation (Blaud's pill) in the treatment of chlorosis, because it cures the patient. The administration of various forms of iron may or may not be all right. Blaud's pill is a well known preparation; it can be procured fresh of the druggist, and it is in a more convenient form to use than any other. This search for something new, we do not know what, in the treatment of a good many diseases sometimes makes us ridiculous. When we have a well tried and efficient remedy in the treatment of a disease, I see no reason why we should seek for something else.

Dr. Sweetser has emphasized the value of arsenic in the treatment of chlorosis. It is used by a number of clinicians as an adjutant to iron.

I cannot see how a sure diagnosis of chlorosis could be made without an examination of the blood. You may have a patient that looks anemic, but as to whether it is chlorosis or secondary anemia is many times guesswork, without a blood examination. In cases of chlorosis cured by arsenic, as mentioned by Dr. Sweetser, it is possible those may have been secondary anemias. In the case of metrorrhagia he speaks of, I do not doubt the diagnosis, although I would like to ask whether a blood examination was made. He did not state that it was, and if it was not made then I should not want to accept the diagnosis of chlorosis in that case.

As to the use of sulphate of soda in the treatment of chlorosis, answering the question of Dr. Brown, I will say that I have no experience whatever with it.

SWEDISH MOVEMENTS AND MASSAGE

A. LIND, M. D.
Minneapolis

The heading of this paper brings us into a field of medicine that may appear new, and still it is undoubtedly the oldest. Swedish movements and massage, although developed to their present perfection within the last century, have certainly been practiced thousands of years. Rest and exercise have been made use of by the savage in his dugout as well as by the millionaire in his palace. As long as the physical culture was receiving more attention than the mental development, the medical part of the Swedish movements was not needed; but as the gray matter of the nervous system became the most important factor in the world's progress, the principles of rest and exercise had to be elaborated so as to meet new requirements.

It is a generally known fact that the farmers or those living in rural districts for some generations are healthier and better equipped, both mentally and physically, than those living in the larger cities. The explanation of this fact is evidently found in the abundance of fresh air and exercise enjoyed by the country people. These two factors, fresh air and exercise, are inseparably connected with one another and with a sound body, forming together with wholesome food the tripod on which the ideal of human health and happiness rests. Much can be done by the physician towards the maintenance or restoration of health to the patient by instruction as to diet and ventilation. We might go even a step further: we may aid the respiration by strychnine, the digestion by ferments, and the circulation by digitalis. But we must confess that when it comes to the most important, the grand metabolism of the great internal respiration of the body, the alteratives or other medicine we give are only a farce. The heart may be ever so active, it can only make the blood circulate rapidly in its proper channels; the lungs and digestive organs may be ever so good, they can purify or enrich only the vascular tissues coming in contact with them. Proper exercise is essential to internal respiration and general metabolism. In case of disease or otherwise unnatural rest or lack of exercise of the body or part

thereof, the tissues thus placed at a disadvantage will have less communication with the general blood-current, and as a result waste materials accumulate, repair material becomes scarce, and deterioration of the part or of the whole body manifests itself by weakness, pain, and other phenomena of malnutrition. The vital organs may be all right for a time, but they will soon participate in the general breakdown. The digestive organs become disordered; the heart, regulated by an upset nervous system, gets weak, and alarms the patient; the lungs are not exercised to their full capacity and tubercle-bacilli find lodgment in some quite poorly nourished part; and the patient grows from bad to worse. Mechanotherapy is the only thing by which we can benefit a good many of these neurasthenic, melancholic, and broken-down fellow beings.

A good spanking will soon bring the natural glow to the pale skin; properly applied passive movements will force the stagnant waste-laden fluids into the circulation; and fresh, nourishing lymph or blood will rush in to give the tissues new life and vigor. You may claim that common exercise will accomplish the same thing, and I admit that in some cases it may; but if the patient did not have energy or strength enough to take exercise to keep himself well, how can we expect him when sick to do what he could or would not do when he was well? Passive motion systematically and intelligently given will benefit a large majority of our patients, and is the best and often the only effective treatment for a great number of our chronic cases. I do not advocate mechanotherapy for the cure of pneumonia or typhoid fever; yet even in those diseases I consider it better than aconite and equal to digitalis. Especially in the last-named disease no physician does his duty without using it at some stage with some patients.

The disorders most readily yielding to mechanotherapy are stomach and bowel troubles, nervous affections, rheumatism, surgical joint troubles, etc. It is self-evident that in utilizing mechanotherapy science and skill is requisite, and he who by improper movements breaks an abscess into the peritoneal cavity or forces a septic thrombus into the general circulation, is guilty of taking the patient's life just as much as is the doctor who kills by an overdose of drugs. An ulcerated stomach-wall might

easily become perforated, a pelvic or appendiceal abscess may break under injudicious manipulation; but, in general, no part of the body yields such magnificent results to mechanotherapy as the abdominal cavity. This is easily explained when we consider that the function, as well as the anatomical construction, of this region readily allows a substitute of work. The sluggish portal circulation is promptly influenced by proper movements, and a pair of trained hands can control peristalsis with astonishing results.

We have all had sad experiences with a certain class of dyspeptics, who go from doctor to doctor and demand medicine to cure "the liver," or relieve their pain and distress, when proper diet and exercise are absolutely necessary for tneir comfort.

Mechanotherapy is the only reliable remedy for our national ailment, constipation. The muscular coat of the intestines is stimulated by Swedish movements and massage just as well as the muscles of the rest of the body are. Through the fistulous opening of the stomach of the Canadian hunter, it was established generations ago that secretions of the stomach were increased by irritations, mechanical or chemical. The same facts have been established in regard to the intestines. It is generally observed that by properly applied mechanotherapy the appetite is bettered, distress and pain due to functional disturbances in the abdominal region disappear, circulation is improved, and at the same time the heart is relieved. The common treatment for intestinal colic is some sedative resulting in distress and constipation which lasts for days or weeks, while in a great number of such cases kneading of the intestines and hot enemas will make the patient well in a few hours.

When we come to the nervous system mechanotherapy shares a good deal of the uncertainty which accompanies so much of the work in this most obscure field of medical science. It is self-evident that lesions of the central nervous system can be very little, and only indirectly, influenced through general nutrition. Functional and peripheral nervous troubles present the most fertile field for mechanical treatment; yet the prognosis must always be guarded. In some cases relief is brought about speedily, in other similar ailments the same operator may work for months without much improvement.

Those having had opportunity to compare generally concede mechanotherapy to be the best treatment for both neuralgic and muscular pains. That the neurasthenic and hysterical patients are benefited by it as by nothing else, cannot be denied. This is readily explained when we consider that the most of these troubles are brought about by lack of exercise or unproportionate nervous strain.

As every decade seems to increase the number of hysterical, bed-ridden women and worn-out business men, every community may in the future have to provide itself with municipal "spanking institutes" where such unfortunates are given or compelled to take proper exercise. In traumatic cases massage is often of great value, and ought to be used much oftener than is now the case. Even in fractures and dislocations it can be used with advantage even in the second week. In sprains and bruises it works admirably. Metzger's followers brag of the good results obtained in fractures of the patella by treating them with massage only. I have never tried it, and would insure well for malpractice before I did.

Tubercular joints ought to be left alone, but can be influenced through the rest of the body. Acute articular rheumatism is best treated by the salicylates. As a rule all acute inflammatory diseases, whether general or local, should be left alone by the masseur. Infiltrations and subacute inflammations in muscles, tendons, fascia, bursæ and synovial membranes are best treated by mechanotherapy. Whenever and wherever metabolism needs to be increased in tissues within reach, mechanical treatment will accomplish it better than anything else. Even when the whole body is below par, it will often, together with hygienic living and forced feeding, bring the system back to normal when everything else fails.

In mechanotherapy too much stress can not be laid on the fitness and training of the operator. A pair of soft trained hands and an intelligent brain are absolutely essentials to success. The ordinary physician generally makes a failure when he tries to be a masseur, for he has neither time nor patience for such work. The temptation to relieve pain quickly by morphine or to stimulate by strychnine, rather than to spend hours without appreciable result, is too great, even if he has acquired skill enough so as not to scare away his patient by his clumsi-

ness at the first attempt. The professional masseur who does not know anything but rubbing and charging good fees, is just as bad as the medical quack in general, and he is more dangerous to humanity than the highway robber. The majority of the so-called masseurs, both "domestic" and "imported," are imposters without knowledge or training, who do not care to work, but want to make an easy living. Laziness makes a masseur entirely worthless. Mechanotherapy means work and hard work on the part of the operator, and no day laborer puts in harder working hours than a faithful masseur.

Considering all this, the question arises, How can we get proper persons to help us out in this important branch of medical science? We are behind other civilized countries in this, and the cause, I think, is mostly with the improperly trained masseur. It is not our nature to stand behind other nations. At present we are up to date or ahead in almost every science and industry. Twenty-five years ago we were inferior as to medical training, and the Europeans are still sneering at us when we go abroad. Now, I feel sure from personal observation that our medical schools are up to the average, and we are rapidly getting ahead of our European friends in medical training. As to Swedish movements and massage no effort has yet been made in this country to bring that in line with other branches of science and art. It is true that Minnesota has again taken the lead, and established a didactic course in mechanotherapy at its university. But with the knowledge of mechanotherapy and without practical training and without trained masseurs, the physician will be in the same position as the carpenter or mechanic without his tools. There is nothing that degrades a trade or profession more than poor representatives. Considering that at least nine-tenths of the representatives of Swedish movements and massage are without proper knowledge or training, it is easily seen why it has not obtained its proper standing. It is the duty of the medical profession to provide itself with proper laborers, or tools if you please, for the work on hand. If this is not done, a good deal of our work will be left undone, and the Osteopaths and other quacks, hostile to true science, will flourish on account of our neglect.

CHRONIC INFLAMMATION OF THE PHARYNGEAL TONSIL WITHOUT INTERFERENCE WITH NASAL BREATHING

WILLIAM R. MURRAY, PH. B., M. D.
Minneapolis

It is not the purpose of this paper to refer to those well marked cases of adenoid growths which constitute such a well known disease of childhood, and which, fortunately, have become so well recognized as a dangerous condition; but I desire to call your attention to another type of chronic inflammation of the pharyngeal tonsil—a condition which is not sufficient to cause obstruction to respiration, but which represents a low grade of chronic inflammation, pouring out its secretion into the nasopharynx, giving rise to a post-nasal catarrh which is extremely obstinate, and causing various reflex disturbances, and, in many cases, giving rise at intervals to a subacute Eustachian salpingitis or to acute otitis media.

Since the discovery of adenoids by Meyer, and especially during recent years, the dangers of adenoid vegetations to a growing child, and the many serious complications to which they are so liable to give rise, have fortunately been so well recognized by the profession that in the well marked cases their removal is usually advised, and it may be that, in these cases of well marked hypertrophy with nasal obstruction, and the presence of the usual well marked symptoms and signs attending adenoids, in the multiplicity of the symptoms rests in a measure the safety of the patient, because they are so liable to be recognized and their removal promptly advised; but in that class of cases where there is not sufficient enlargement to cause interference with respiration, where the principal complaint may be an obstinate nasopharyngeal catarrh or a susceptibility of the patient to "take cold," I believe the underlying cause is often overlooked.

The term pharyngeal tonsil is applied to a normal structure which is situated in the roof of the nasopharynx, and is composed of lymphoid tissue presenting slight ridges on its surface and structurally composed of a fibrous connective-tissue frame-work, rich in blood-vessels and enclosing masses of lymphoid cells, the whole

being covered by an epithelial layer, presenting on its surface the ciliated variety, which is continuous with that lining the respiratory tract of the nose and nasopharynx.

The nasopharynx of an infant is small, undeveloped, does not possess the dome-shaped cavity present in adults, is easily occluded in any part of its course, and even a small amount of adenoid tissue may cause obstruction in respiration and the gradual disappearance of these marked adenoid symptoms which, if not interfered with, commonly occur about the age of puberty, is due partly to the development of its fibrous tissue within the glands, causing constriction and partial atrophy, but it is due, also, in a large measure, to the enlargement of the nasopharynx that occurs at this time.

Later in life when the post-nasal space has become fully developed, a small amount of adenoid tissue may remain without causing any interference with nasal respiration, or the gland may remain in a state of chronic inflammation, causing a post-nasal catarrh, a congestion of the nasal cavities, of the larynx or bronchi, and in some cases accompanied by cough, hoarseness, indigestion, etc.

Pathologically the presence of a chronically inflamed pharyngeal tonsil presents two different types, the one, occurring chiefly, though not always, in children, and presenting a condition of hypertrophy, soft in consistency and very vascular, fills usually the small nasopharyngeal space of a child, and is a cause of nasal obstruction, and usually extends laterally to the orifices of the Eustachian tubes. To this form various names are applied, such as adenoids, adenoid vegetations, hypertrophy of the pharyngeal tonsil, etc. In the second class, occurring more often in adults, we find the gland chronically inflamed without much hypertrophy, fibrous in structure, smooth, and with irregular surface, presenting slight fissures and follicles, from which considerable discharge is secreted. It is not attended by any obstruction to nasal respiration, and we have it existing as a sequel to a marked obstructive hypertrophy which existed in childhood, or it may have existed only as a chronic inflammation *without* hypertrophy.

In this form of inflammation the symptoms differ from those present with an obstructive hypertrophy, and the principal condition for which the patient seeks relief may be an obstinate and chronic post-nasal catarrh, some-

times accompanied by a stubborn cough, with expectoration, and a constant irritation of the throat. On inspection the pharnygeal tonsil appears but slightly enlarged, is firm, and is usually covered with a mucous secretion. The nasal passages, unless there is an accompanying chronic rhinitis or hypertrophied turbinals, are usually free from secretion, but there is present a chronic discharge, which may find its way forward into the nasal cavities, or, dropping down, may excite a laryngitis or bronchitis. It is attended, on the patient's part, by a hawking and spitting, especially on arising in the morning, and in the effort to clear the throat from the accumulated discharge, which has become tenacious and dry, and the low grade of chronic inflammation in the tonsil is subject, at intervals, to a subacute inflammation, giving rise to an Eustachian salpingitis, or the inflammatory process, passing to the middle ear, may give rise to a subacute otitis media, rather than to the acute otitis which so often accompanies the marked hypertrophy of the pharyngeal tonsil, and which is so commonly present in childhood.

The most frequent complication accompanying a chronic inflammation of the pharyngeal tonsil is the tendency to acute congestion of the gland, with involvement of the nasal passages, or, as the patient states, repeated "colds in the head," during which there may be a closure of the Eustachian tubes, or direct involvement of Eustachian tubes may occur from the presence in the nasopharynx of the mucopurulent secretion attending the post-nasal catarrh, or the ear involvement may progress into a chronic condition resulting in a chronic otitis media.

The term "throat deafness" is sometimes applied to this condition of Eustachian obstruction resulting from nasopharyngeal catarrh; and as Eustachian catarrh is the origin of a large proportion of the diseases of the middle ear, it naturally follows that, given a case of disease of the middle ear, in which the starting-point was an Eustachian salpingitis, and in which the causative factor is an abnormal condition in the nasopharynx, we can hope for no improvement in the middle ear until the source of the trouble has been removed.

Considerable attention has been directed recently to chronic inflammation of lymphatic structures in the res-

piratory tract as a possible infection atrium for tuberculous germs, and while, so far as the writer is aware, there have been no published statistics showing the connection between tuberculosis and the type of low-grade inflammation of the pharyngeal tonsil without much hypertrophy, investigators have shown tuberculosis to be present in many cases of the more pronounced forms of adenoid growths.

Brindil found microscopic evidence of tuberculosis in 12.5 per cent of his cases of hypertrophy of the pharyngeal tonsil; Gottstein found 12 per cent tuberculosis; and Plunder and Fisher of Hamburg found 15 per cent tuberculosis.

Among other frequent complications of this form of chronic inflammation we find rhinitis, laryngitis, and bronchitis due to direct extension of the inflammatory process to contiguous parts, or gastric and intestinal disturbances due to the presence of the mucopurulent discharge which has found its way into the digestive tract.

While the treatment in these cases consists chiefly in the thorough removal of the diseased gland by means of the curette and forceps, followed by topical treatment in the form of cleansing and stimulating applications in many cases constitutional treatment in the form of tonics, etc., and the correction of gastric and intestinal disturbances, which sometimes co-exist, will be found necessary.

CONCLUSIONS

1. That a chronic inflammation of the pharyngeal tonsil may exist without any obstruction to nasal respiration.

2. That many cases of post-nasal catarrh are due to the presence of a chronically inflamed pharyngeal tonsil.

3. That some cases of acute and chronic otitis media have their origin in an Eustachian salpingitis, which was due to a low grade of inflammation of the pharyngeal tonsil.

4. That in the treatment of some cases of chronic otitis media the source of the trouble may be overlooked, and that no permanent improvement will follow until the underlying cause be removed.

5. That if the presence of a chronically inflamed pharyngeal tonsil were more generally recognized and

thoroughly removed, there would be fewer cases of chronic otitis media.

DISCUSSION

Dr. E. J. Brown: Dr. Murray's excellent paper has called our attention to a subject that is certainly too much neglected. One particular point which I think will bear more emphasis is the fact that in many people other conditions of the pharyngeal tonsil exist, and cause serious disturbances which are often overlooked. For instance, quite a number of years ago, eight or nine, I removed a very large adnoid from a young married woman who had been suffering from a very severe cough and cold. The cough was very violent in character, and no remedy seemed to improve it. Her husband was a medical student, and he brought his wife to my office. I found a very large adenoid growth, which I removed with immediate relief of the cough. I saw nothing more of her professionally until some time during the last year, when she came into my office. She was very much reduced in health, and she said she had been coughing very severely for more than a year. She had been under the care of several physicians, and had received the impression, whether from the physicians or not I do not know, that she had a severe heart trouble. On examination of the nasal pharynx I found a small amount of adenoid growth or tissue. It was very small and not large enough to cause any trouble, one would suppose. A removal of all the adenoid growth, and a little assurance that she had no heart difficulty, cured her in a few days.

I have to confess that so far as treatment of adenoids in children is concerned I am a little less radical than I was when I first began to practice. I used to operate on babies pretty radically for any trouble of the ears. Now I am disposed to let all adenoids alone until the child is two or three years old. I believe if we will use one of the mineral oils with a mild antiseptic, like eucalyptol, we shall tide over these trouble, and the baby will get along until two or three years old, when the operation can be done much more successfully and with much less danger of getting trouble in the ears consequent upon the irritation that follows the operation.

Dr. C. J. Spratt: I have listened to Dr. Murray's paper on adenoids with much pleasure, and I shall, at the beginning of my remarks, make a criticism and confession. My confession is this: For years I was engaged in general practice. I saw from time to time children who were brought to me with what their parents thought was catarrh. I thought the same in my ignorance. I swabbed and sprayed their pharyngeal vaults until their parents were disgusted with my efforts, and lack of improvement in the breathing and hearing of the patients. My criticism is that too many of the physicians that are within sound of my voice are pursuing the same treatment that I in my ignorance carried out.

Dr. Murray has been kind enough to permit me to read his conclusions. The condition that he mentions in his paper,

especially adenoids without obstruction, is not found often in children, but rather in those who have reached manhood and womanhood. The tissue which causes the obstruction in early childhood in a large majority of these unfortunates, if not removed surgically, will be removed by nature as hypertrophy of the faucial tonsil atrophies, but occasionally instead of the adenoid tissue of the vault being absorbed when the individual reaches the age of 18 to 25 years, it is transformed into fibrous tissue, and this is the condition which exists in such cases as Dr. Murray mentions in his paper; not a distinct case of adenoids, but a sequel to the ordinary adenoids found in childhood.

It is not my intention to enter into a lengthy discussion as to the injury which this disease may cause in the growing child, and I will state, in a few words, some of my conclusions.

First, eliminating disease of the middle ear not caused by the exanthemata, I am firmly convinced that at least ninety per cent of the remaining cases are due to adenoids. How does it cause deafness? By causing a chronic stasis in the vault, which leads to congestion of the mucous membrane of the middle ear by the way of the Eustachian tube; secondly, by the nasal and tubal obstruction preventing the free entrance of air into the tympanic cavity, thereby preventing the proper equilibrium or equal atmospheric pressure on both sides of the tympanic membrane, which is requisite for its normal vibration. A mother will come to you and say: "Johnny takes cold so easily, and he is stuffed up, and cannot breathe through his nose—or he has catarrh," or "Mary has the earache, if she gets her feet wet," and almost every case of earache in children is inflammation of the mucous membrane lining the middle ear. Look these conditions squarely in the face, and cease your spraying and snuffing of powders into the nose. Get to work and remove the adenoid tissue from the vault. If you are not competent to do so yourself, ask some one who is to do it for you. It is not every case of adenoids which gives rise to nasal obstruction, but in most cases of deafness in children you will find adenoids. In practically all cases where children are deaf when they "take cold" the proper and only treatment is removal of the growth. Medical treatment is a snare and delusion; surgical treatment is restoration or preservation of the important sense of hearing.

In conclusion, I think the family physician is greatly responsible for a large percentage of deafness. Go out into the byways and schools, and one who has learned to recognize this disease from the facial expression of the child will too often find the little ones with listless expression, the lower jaw down and lips parted; the angles of the mouth, wing of the nose and outer canthus of the eyes showing a drawn-downward expression. Too often the remark is made, "The child shows a stupid expression." Remove the growth and a transformation will often take place.

Let me urge each of you to learn to diagnose these cases, and relieve the little ones of the burden under which they labor and the misfortune of impaired hearing.

Dr. Wm. R. Murray (Essayist): I do not know that I have anything further to add. I have endeavored in this short paper

to emphasize the point that in many of these cases we do not find any nasal obstruction.

I agree with Dr. Spratt that the majority of cases of diseases of the ear in children are due to adenoids, and I will go a little further than that, and say it is exceptional to find a case of cold in the head in a child under six years of age where it is not due to hypertrophy of the pharyngeal tonsil. It is rare to find a case of chronic rhinitis in children.

CAN WE BY MODERN METHODS ANTICIPATE IMPENDING ATTACKS OF PUERPERAL ECLAMPSIA?

J. L. Rothrock, M. D.
St. Paul

There is perhaps no complication in obstetrical practice which is the occasion of so much anxiety as puerperal eclampsia. Insidious in its onset, and presenting no marked or characteristic premonitory symptoms, too often the busy practitioner, who, it must be confessed, seldom pays much attention to his expectant patient until called to her in labor, is taken by surprise, and finds himself wholly unprepared to meet such a grave emergency.

Eclampsia is variously estimated to occur in 1 in 150 to 1 in 400 cases of labor. It is more common in large cities than in small towns and rural districts. According to statistics it is more common in Russia than other portions of Europe. Race too seems to have some influence. My own observation among Russian Jews in American cities leads me to believe that it is of less common occurence among them than among Americans. It is said to be unknown among American Indians, and this may also be said of other savage tribes, it being a disease exclusively confined to civilized peoples.

In the entire field of medicine there is probably no disease which has been the subject of so much investigation in recent years as puerperal eclampsia, and as yet we are in absolute ignorance of its cause. We shall pass over the various theories which have been proposed from time to time, and which are no longer regarded as tenable. At present two theories demand special consideration. One is that eclamptic attacks are uremic, and occur in patients

with pre-existing nephritis. Those who contest this theory assert that eclampsia may occur in patients whose kidneys show no evidence of pre-existing nephritis. On the other hand, it is a common clinical observation that patients with marked nephritis, if they become pregnant, rarely are the subject of eclampsia. In further proof that eclampsia is not a pure uremia, certain characteristic changes in the liver and blood which, as we shall see later, are almost constantly present in eclampsia, are wanting in ordinary cases of uremia. The theory of uremia presupposes a pre-existing nephritis as the primary condition, while the pathologic-anatomic findings in cases of eclampsia, make it reasonably certain that the kidney lesions are in general secondary. The theory of uremia has at present but few supporters, especially when generally applied to cases of eclampsia, but there are some who still believe it applicable to certain cases.

The other theory, and the one which to-day finds most adherents, is that of auto-intoxication, which signifies that during pregnancy under certain conditions poisons are elaborated, and circulating in the blood, may reach, by accumulation, such a degree of concentration as to produce the characteristic eclamptic seizures by their action on the nerve-centres.

The recent experiments of Blumbreich and Zuntz[1] have shown that during pregnancy a considerable increase in the excitability of the nerve-centres takes place, rendering them peculiarly responsive to any form of stimulus, which may in part explain the unusual tendency to eclamptic attacks at this time.

The theory of auto-intoxication had its inception in the teachings of Bouchard some years ago, who had determined that the urine in health was extremely poisonous to lower animals when injected into the circulation.

Laulanie and Chambrelent[2] conducted a series of experiments in eclamptic patients and found that the urine was much less poisonous than that of normal pregnant women. They also conducted experiments to determine the relative toxicity of the blood-serum of eclamptic women, and found that the blood-serum of such women was far more toxic than in health. They further determined by their experiments that the degree of toxicity of the blood-serum of eclamptics was in direct proportion to the diminished toxicity of the urine. They there-

fore interpreted these findings as proof of the accumulation of poisons in the blood of eclamptics, and a corresponding diminution of elimination of the poisons by the kidneys. These experiments have in the main been confirmed by Ludwig and Savor[3], while Volhard's[4] experiments gave results directly antagonistic.

Recently Schumacher[5] has thoroughly gone over the ground in an exhaustive series of experiments, and concludes that both the blood-serum and the urine of the normal, as well as the eclamptic, patient, while poisonous are constantly changing, being subject to wide variations in the degree of their toxicity, and that it is by no means certain that the toxic agent, which produces results on experimental animals, is the same which causes eclampsia. The nature of the poison has given rise to much speculation. Early investigators believed it to be ammonium carbonate, the result of a splitting up of urea in the blood. Others have advanced the theory that the poison was a retained constituent of the urine, kreatin or kreatinin. Masin[6], by an elaborate series of experiments, attempted to show that it was carbamic acid, a product of intermediary metabolism, while Roehl attributed the eclampsia seizures to leucomain poising, basing his conclusions on the increase of leucomains in the urine of eclamptics.

Recently Albert[7] has advanced the theory that the poison has a bacterial origin from a latent infectious endometritis existing during pregnancy. Most of the supporters of the auto-intoxication theory regard the poison as the product of intermediary metabolism of the liver, while others (Fehling) look upon the fetus as being the source of the poison.

While each of these theories has arguments in its favor, neither the nature of the poison nor its source is known. The pathologic-anatomic findings in patients dead of eclampsia furnish perhaps the strongest proof of the chemotoxic theory. Schmorl[8], who has made an exhaustive examination of the bodies in 73 patients dead of eclampsia, found changes in the kidneys in all but one, consisting of cloudy swelling, fatty degeneration and desquamation of the renal epithelium, with frequently, but not constantly, epithelial necrosis. In addition thrombi were found in the glomeruli and in the small veins and arteries. The liver also was quite constantly involved,

presenting, in 71 of 73 cases examined, hemorrhagic and anemic necrosis, and in the two cases in which these changes were not found there were present fresh thrombi in the portal vein. Similar changes were found in the brain and lungs, and in the heart fatty and parenchymatous degeneration was common. Schmorl interprets these changes in the different organs as complicated necrotic processes secondary to the thromboses.

The recent experiments of Kohlman[9] and Dienst[10] have shown that there is an increase of fibrin in the blood of an eclamptic.

Volhard, who has confirmed these experiments, attributes this rather to an increase in the fibrin ferment than to an actual increase of the fibrin in the blood, and he asserts that this explains the multiple thromboses which are so constantly present in the organs of those dead of eclampsia.

Having thus briefly stated the more recent views on the nature and etiology of eclampsia, let us consider what means we have at our disposal to determine that an attack of eclampsia is approaching.

The discovery of albuminuria in a large proportion of cases of eclampsia early called attention to the importance of urinalysis in pregnant women. Albuminuria is almost constant in eclampsia, if not before, certainly during, the attack. Olshausen, from a series of 200 cases of eclampsia occurring in his own clinic and a like number from the clinic of Gusserow, found albuminuria present in 98 per cent of the cases. Zweifel, in a series of 129 cases, never failed to find albumin in the urine. Its almost constant presence renders it a sign of considerable importance, a danger signal which should not be passed unheeded. In recent years there has been a tendency to attach less importance to the presence of albumin in the urine of pregnant women, from the clinical observation that many patients with albuminuria go through labor with no eclamptic manifestations. The significance of albuminuria in the light of the recent investigations of Schmorl is of vast importance as indicating either very serious renal changes of a character which are constantly present in eclampsia or chronic ne-

phritis. On the other hand, from our present knowledge it is evident that while the search for albumin in the urine is a very important procedure in all cases, it does not give us sufficient information of the patient's condition. For example, we may have very marked renal insufficiency before the appearance of albumin, while in the presence of the most pronounced albuminuria the eliminative power of the kidney may be perfectly maintained. It is to the urine that we must still look for signs of threatening eclampsia, since it has been pretty definitely determined that the eliminative power of the kidney bears some relation to the probability of eclamptic seizures.

Recently we have added to our hitherto known methods of determining the eliminative activity of the kidney, a new one based on the molecular concentration of the urine as ascertained by determining its freezing-point. This method, which was first applied to the blood by Richter and Roth[11], and later to the urine by Koranyi[12] and Lindemann[13], has been found a valuable aid in determining the functionating power of the kidneys. Schroeder[14] has recently made application of this method for the determination of renal activity in pregnant women, and from a series of 111 cases examined he arrives at the following conclusion:

In chronic interstitial nepritis during pregnancy the molecular concentration of the urine is very low; in labor it falls enormously; and in the puerperium it again ascends.

In chronic interestitial nephritis during pregnancy the urine maintains a fairly good degree of concentration, and only shortly before or during labor does it fall and again rise in the puerperium. According to Koranyi a beginning rise in the molecular concentration is a favorable prognostic sign. Should an eclamptic attack occur, the molecular concentration of the urine at once sinks very low. Schroeder concludes from these experiments that the lowering of the molecular concentration of the urine may be accepted as indicating renal insufficiency, which may be followed by eclampsia during labor or in the puerperium.

In these experiments Schroeder found that the amount

of albumin present bears no relation to the molecular concentration of the urine, and that frequently in the absence of albuminuria the determination of the freezing-point showed almost absolute renal insufficiency.

Schroeder also conducted experiments for the determination of the freezing-point of the blood, and in two cases of eclampsia with low molecular concentration of the urine, there was an enormously high pathological concentration of the blood.

He also conducted a series of experiments for the determination of the degree of blood-pressure in pregnant women, and found that while it is slightly increased just before and during labor its only value is in differentiating cases of chronic interstitial nephritis, in which the blood-pressure is invariably greatly increased.

Very closely related to the determination of the freezing-point is the specific gravity of the urine, which Schumacher regards as one of the most important indices of renal sufficiency. A careful examination of Schroeder's tables, however, shows in certain cases a wide variation between the molecular concentration, as estimated by determination of the freezing-point, and the specific gravity, though in many cases there does seem to be a close relation.

For several years I have insisted upon the importance of the quantitative estimation of the urea in the urine of the pregnant women, as forming an index to the degree of renal sufficiency, and during that time I have repeatedly made the observation that the quantity of urea eliminated bears absolutely no relation to the degree of albuminuria. Frequently in very highly albuminous urine the quantity of urea will be up to normal, while urine entirely free from albumin may show the presence of very little urea. In all cases in which the urea was diminished the specific gravity was reduced, but the relative proportions were not maintained. In cases of renal insufficiency the quantity of urea eliminated at different times varies greatly, so that it is absolutely necessary to estimate from a specimen taken from a twenty-four hour collection.

Very frequently it has been possible to predict impending trouble, which sooner or later was confirmed, by

the appearance of albumin in the urine, and in one case under my observation an attack of eclampsia followed. It is true, as has been argued of the value of this method, that many patients, in whom in the latter weeks of pregnancy a marked diminution of the elimination of urea takes place, pass through labor without eclampsia, without even so much as dietetic treatment, but we never know how narrowly such patients escape.

Among other methods of determining the renal sufficiency which have been proposed, may be mentioned the phloridzin test, which, so far as I am aware, has never been applied to pregnant women. Recently Olivier[15] conducted a series of experiments for the determination of renal sufficiency by the administration of methylene-blue. In five cases of eclampsia the elimination was defective in all but one. In this patient the elimination was perfectly regular, but the symptoms were far more severe and it terminated fatally. Olivier concludes that renal or hepatic insufficiency is not inevitably necessary to the production of auto-intoxication, but that with an over-production of toxines, in spite of a normal elimination, the accumulation necessary for the production of eclampsia may take place.

In order that any of these tests may have clinical value, it must form a part of routine practice. It is highly essential that the urine of pregnant women be examined frequently during the latter months of pregnancy. During the latter weeks of pregnancy weekly examinations should be made, or even more frequently should a suspicious specimen be received. I am satisfied that, if such examinations were made in all cases as suggested, only in the most exceptional instances should we fail to anticipate threatened eclampsia. The more weighty argument in favor of routine examinations of the urine in all cases, is that with the early recognition of the first sign of renal insufficiency, the patient may be placed on prophylactic treatment, and the attack, if not absolutely averted, may be so modified that the patient may be safely carried through it. Furthermore, being in anticipation of an attack, prompt and active treatment could at once be instituted, and the convulsions be brought under

control, for all authorities agree that with each succeeding convulsion the prognosis becomes more grave.

BIBLIOGRAPHY

1. Archiv. f. Gyn., Bd. 65, H. 3.
2. Annales. de Gynecol., 1890, p. 253.
3. Monatsschrift f. Geb. u. Gyn., Bd. 1.
4. Monatsschrift f. Geb. u. Gyn., Bd. 5.
5. Beitrage Zur Geb. u. Gyn., Bd. 5., H. 2.
6. Centralblatt f. Gyn., 1895, No. 42.
7. Archiv. f. Gyn., Bd. 66, H. 2.
8. Archiv. f. Gyn., Bd. 65, H. 2.
9. Centralblatt f. Gyn., 1897, S. 341.
10. Archiv. f. Gyn., Bd. 65, H. 2.
11. Berliner Klin. Woch., July 24, 1899.
12. Berliner Klin. Woch., Sept. 4, 1899.
13. Deutsch Archiv. f. Klin. Med., Sept., 1899.
14. Beitrage Zur. Geb. u. Gyn. (Fritsch Festschrift), 1902.
15. Reference, Jour. A. M. A., June 21, 1902, p. 1628.

DISCUSSION

Dr. H. A. Tomlinson: It is unfortunate, in the study of puerperal eclampsia, that its pathology is obscured in those cases which die by the effects of the shock and organic disintegration which result from the convulsions themselves; and this is especially true with regard to the liver and spleen, as death is always preceded by vasomotor paresis and cyanosis. The relation of the kidney to puerperal eclampsia has always seemed to me to be more clear and definite. It is true that chronic disease of the kidney is seldom found present in primiparæ, who suffer most frequently from eclampsia; but I believe it is practically always present in those cases where eclampsia occurs in multiparæ. Again, although apparent involvement of the kidneys, anatomically, may not be present in fatal cases of eclampsia among primiparæ, it does not follow that the function of the kidney is not materially interfered with. So far as my own observation goes, primiparæ who have been the victims of puerperal eclampsia, have almost invariably had a neurotic history and a bad heredity. Therefore they were more liable than the ordinary woman to the incidence of convulsion from any cause. Besides, anyone who makes many post-mortems knows how common persistence of lobulation and small shrunken pyramids are in the kidneys of even young people who are neurotic or defective. It follows, then, that, as the conditions of metabolism present in the pregnant woman bring to bear an unusual strain upon the eliminatory organs, especially the kidneys, and particularly that part of their function which is selective and has to do with the reduction and elimination of the waste products which come to the kidneys imperfectly reduced, the functional capacity of the kidneys in these cases is not sufficient for the work they have to do.

The reduction or increase in the amount of urea can have no special significance, except in so far as it indicates disturbance in the function of the liver, and therefore increased

strain upon the kidneys. It is probable also that the pregnancy itself is a factor. It is a matter of even common knowledge that pregnancy is always accompanied by some nervous erethism, and in most women with considerable disturbance of equilibrium in the nervous system, in proportion to the instability of the woman. Therefore, there are a number of factors which are potent in rendering the pregnant woman susceptible to convulsions, so that a degree of interference with the function of the kidneys that would be insignificant under ordinary circumstances might be sufficient to cause retention of the waste products of destructive metabolism, enough to bring about auto-intoxication, and that indefinite condition which we call uremia. It is quite common in uremic convulsions occurring in other than pregnant women, for no evidence of involvement of the kidneys to have been apparent before the appearance of the convulsions; and this is also true in the cases of so-called heart failure and apoplexy, which are now known to be uremic in their origin. It is also true that these cases show very little evidence, post mortem, of structural involvement of the kidneys; but they are usually distended with blood, and under the microscope show evidence of round-cell infiltration. As I have explained elsewhere, this condition, which is a concomitant of vasomotor paresis and terminal, is probably always preceded by vasomotor spasms and ischemia. I should want more evidence than is furnished by the ordinary urinalysis to convince me that the function of the kidneys was intact in a case of puerperal eclampsia.

Dr. Geo. C. Barton: There are two things in connection with puerperal eclampsia that have always been rather peculiar to me. The fact of the matter is I have seen but one case of puerperal eclampsia in twenty-two years' practice, so I do not speak from experience in connection with the subject. The one thing that seemed peculiar was that brought out by Dr. Tomlinson, namely, that while the elimination of albumin from the kidneys, or the presence of albumin in the urine, is an indication of trouble which may give rise to convulsions in confinement, the fact is convulsions do not occur until at the time or near the time of confinement, and this albuminuria, which exists during the latter months of pregnancy, at any rate, is the indication of the presence of some irritant. The simple fact that that condition existed during that time, and no convulsion was produced, looks to me as though there was some exciting cause besides the effect of the irritation, whatever it may be.

I know from a chemical standpoint that a very slight change in the ingredients of a substance may change a substance not poisonous into a poisonous substance, so during metabolism a non-poisonous may be changed into a poisonous substance that gives rise to this irritability of the nervous system which at confinement causes convulsions. I account for it in this way: An animal under the influence of strychnia will be thrown into spasms by very slight irritation, while in a normal condition the same irritation will not produce any spasms whatever; so it

has seemed to me that the irritation in the blood that has so excited the nervous system in neurotic people at the time of confinement gives rise to convulsions. As to the pathological changes that take place: I have not looked that up.

I was very much interested in the doctor's paper for the reason that it has presented these different conditions.

Dr. J. L. Rothrock (Essayist): In reply to Dr. Tomlinson's argument that the lesions found in those dead of puerperal eclampsia are due to the convulsions, I can only quote Schmorl, who has made a large number of observations on those dead from epilepsy, and in no case was he able to find the tissue-changes which are so characteristic and constantly present in eclampsia. In further proof of the fact that the changes described by Schmorl can scarcely be due to convulsion seizures, Schmorl has reported one case that died forty minutes after the first attack, in which he found the lesions most pronounced.

As regards the subject of the etiology of eclampsia, according to our present knowledge, it is but theoretical. All that we can say is that certain facts have been observed from which we must draw our conclusions. The question of "defective" kidneys, so called by Dr. Tomlinson, as showing a tendency to nephritis as well as to puerperal eclampsia, is something of which I have no knowledge; in fact, all we can say is that by clinical observation we have come to know that certain women, when they become pregnant, present a diseased condition of the kidneys, which previously had been thoroughly normal. Another argument in favor of the fact that this condition is peculiar to pregnancy is that the albuminuria soon disappears after delivery in from a few days to a few months, rarely lasting a long time. The longest I have seen it persist and then disappear was eight months, and the same patient, when again pregnant, three years later, had albuminuria during the last two weeks, which cleared up immediately after delivery. At the present time, under the most critical examination, I believe her kidneys are perfectly normal. I do not wish to be understood to say the renal insufficiency is the cause of the eclamptic seizures, but clinical observation shows that there is a relation between attacks of eclampsia and renal insufficiency, and as such I have laid particular stress upon it, because it is the only means we have of anticipating, as it were, the impending danger. These signs are, in my opinion, by no means absolute; yet, if carefully observed, I believe that in many cases the danger may be foreseen in time to institute prophylactic treatment before the attack comes on.

In reply to Dr. Barton's statement that eclampsia depends upon increased excitability of the nervous centers, I have called attention to this as a predisposing cause. I find, however, that as he proceeded further with his discussion he did not differ so far in his conclusions from the paper, and believes in the auto-intoxication theory. I do not claim that we can absolutely prevent attacks of eclampsia, even though recognizing the impending danger, but I do believe that it is possible in many cases to tide the patient over the critical period without an attack, by early recognizing the danger and instituting proper prophylactic treatment; that is, in regulating the diet and hygiene of the patient.

IRRITABILITY OF THE BLADDER

J. H. RISHMILLER, M. D.
Minneapolis

The presentation of a unique clinical history of a case with an unusual symptomatology referable to the urinary bladder, is my apology for taking your precious time and valuable attention. The vesical irritation produced by a laceration of even the severest degree of the posterior vaginal wall never has equalled, in my experience, the profound disturbance evinced by the case to be related. Furthermore, that with the restoration of the posterior vaginal wall, such signal and satisfactory results were obtained as to completely restore an emaciated and long bed-ridden patient to perfect health and happiness.

Asbury Hospital, Feb. 16, 1899.—Mrs. C——, aged 32, was referred to me by Dr. Mesker, of Olivia, Minn. She was a housewife by occupation, and had been married for twelve years. She first menstruated at the age of 14, and had always been regular; type, three weeks; flowed 4 to 5 days, quantity and character about normal; and had dysmenorrhrea until the first child was born. She has five children, ages 4 to 12 years, and the labors had all been practically normal except the last, when a precipitate delivery lacerated the body of the perineum down to the rectum. She had one miscarriage three years ago, advanced to four months; has had for past year anorexia and indigestion; has been eating mostly liquid diet since last summer on account of want of teeth; vomits occasionally; tongue coated; and has been constipated for the past twelve years, sometimes going a week without defecation. Five years ago she weighed 150 pounds, but is now reduced to 122 pounds. She complains mainly and constantly of the unendurably frequent micturition. She first noticed this two years ago when she had spells of urinating every five or ten minutes. Seven months ago, for sometime she was unable to void her urine. This was followed by inflam-

mation of the bladder. On jolting or riding the bladder trouble becomes unbearable. When this pain in the hypogastric region first started she noticed it before, but now after, passing water. For the past two years she has gotten out of bed from two to four times during the night to void her urine. For the past five months she has been constantly confined to her bed, lying on her back with the knees flexed and with the thighs crossed. In this position she was a pitiable object to behold, and a suffering bundle of nerves was written all over her facial expression.

Examination showed that the posterior vaginal wall had been torn down to the rectum, revealing a large rectocele, together with a bunch of bleeding hemorrhoidal veins. There was apparently trifling sagging of the bladder. The uterus, however, was lower down than normal, somewhat anteverted, and rested on the bladder. The tubes and ovaries, on bimanual examination, were found normal, and no inflammatory condition could be detected in the pelvic cavity. Urinalysis, both chemical and microscopical, proved negative.

The symptoms all centered towards some apprehensive bladder complication, and, in order to be certain of a correct diagnosis, it was deemed advisable to make a cystoscopic examination. This was undertaken the next day under chloroform anesthesia, but nothing was observed which could in any degree account for the fulminating symptoms, except an intense hyperemia of the mucosa of the neck of the bladder, and commencing urethra, as the parts folded over the receding end of the endoscope. The neck of the bladder is a fixed point, and is bound down in position under the pubes by the pelvic fascia, and a prolapse of the body of the bladder would consequently cause this hyperemia and irritation at the anchored neck of the urinary viscus, and produce all those life-burdening symptoms. The cervix of the uterus was then dilated and the uterine cavity curetted and tamponed with gauze.

Feb. 22, 1899.—After this careful examination I concluded to perform a thorough Emmet operation for the

relief of the voluminous rectocele, and for the support of all the more or less prolapsed pelvic organs. The Emmet operation was admirably suited to the conditions, and, in my estimation, was the only one which promised to restore this wide-gaping pelvic floor. Under chloroform I operated and carried my lateral vaginal denudation close to the cervix, and then I deeply inserted four silver-wire sutures in each angle, and three for the outside. This brought the whole posterior vaginal wall in a sweeping arch from the cervix on snugly up to the bladder. The three external sutures were removed on the tenth and the eighth day, and internal sutures on the nineteenth day. I kept the patient in bed for three weeks and obtained perfect union.

The day after she got out of bed she walked, without my permission, from the Asbury Hospital to my office, and expressed her gratitude that she was perfectly well, and that she had not even a vestige of bladder trouble and could void and retain her urine *ad libitum.* Considering that this patient had been an invalid for the past two years, a bed-ridden one for the past five months, emaciated from 150 pounds down to 122 pounds, and, on the whole, a complete physical wreck, it was certainly very gratifying to have obtained such excellent results from the operation, and ultimately to have transformed a human wreck to a happy being.

Olivia, Minn., June 6, 1901.

J. H. RISHMILLER, M. D.

Dear Doctor:

You ask about Mrs. C——. She has been well ever since she returned. On the 21st day of March, 1901, I attended her in confinement, and she gave birth to an eight-pound boy. The labor was natural and easy. She was sick about four hours, and there was not the slightest injury to the perineum. She weighs 160 pounds, has no bladder trouble, her bowels are regular, and the hemorrhoids have entirely disappeared.

Yours Truly,
GEO. H. MESKER, M. D.

In my plastic operations for the restoration of the posterior vaginal wall, which are nearly always accom-

panied by large hemorrhoids, I am invariably requested by the patient's physician to operate on the hemorrhoids at the same sitting. The hemorrhoids are present because the veins have lost their support by the laceration, although in restoring the posterior vaginal wall I always carry my sutures laterally deep into the tissues, in order to bring the muscles and fascia together. These deeply-placed sutures will include the redundant veins, and it is the very best modus operandi to obliterate and cure hemorrhoids of any degree, even in cases that have a feeling that the "bottom has dropped out." Therefore to operate in this class of cases, likewise for hemorrhoids, is, in my experience, entirely superfluous, and I have yet to see the case where the patient was not entirely relieved of her bunch of redundant veins.

I rarely find it necessary to operate upon cystocele itself, as was the custom some fifteen years ago. Why? Because, in eliminating and correcting the condition which ushered in the cystocele, we should be able to restore the bladder to its former position and normal function. Why not? Because you diminish, diametrically, the capacity of the bladder to the degree you carry your operation for anterior colporrhaphy or cystocle. The operative interference of the different displacements of the urinary bladder invariably resolves itself into the treatment of the associated conditions which have caused the displacement; in other words, operate on the cause, and not on the condition.

DISCUSSION

Dr. Edwin Phillips: I was much pleased with the paper, but I differ with Dr. Rishmiller in one thing, i. e., in the manner of making a perineal body sustain the anterior vaginal wall. If you have a large prolapsed bladder you should operate on the cystocele before or at the same time you operate for a lacerated perineum. The doctor said he preferred Emmet's operation, known as the butterfly operation. This operation takes up the lax and torn tissue in the lateral wall of the vagina, which is well enough so far as it goes, but it fails to make a perineal body to sustain the anterior vaginal wall and the cystocele. This butterfly operation may hold the parts up for a short time, and benefit the cystocele and irritable bladder, but as soon as the parts are put on the stretch the old troubles

return. The only operation that will benefit the patient for any length of time is Emmet's old operation, where you bring together the torn levator ani, transverse perinei, sphincter vaginæ, and sphincter ani muscles, and ischioperineal ligaments and lower portion of the triangular ligament, and keep the patient on her side, with knees tied together, until you have a normal perineal body that will sustain the anterior vaginal wall, and thereby prevent another cystocele. This is about the only criticism upon the manner in which the perineal operation was performed.

Dr. J. H. Rishmiller (Essayist): Dr. Phillips speaks of performing the operation for cystocele first. Of course, when you have an hour-glass dilatation of the bladder an operation for cystocele is indicated, but anterior colporrhaphy for irritation of the bladder, due to want of proper perineal support, will be only a dismal disappointment. Furthermore, you diminish the bladder at the expense of its capacity. Now, if you operate for cystocele alone and restore the posterior vaginal wall at a second sitting, the outcome, from my experience and from the observations of other operators, will show a majority of failures.

Dr. Phillips: Operate for cystocele and on the perineum at the same time.

Dr. Rishmiller: I am very much averse to operation on any degree of cystocele, because I have observed too many failures; and even Dr. Emmet, when I was his house surgeon, would not operate unless there was no other way of getting around it.

Dr. J. W. Andrews: Why should there be failures?

Dr. Rishmiller: For the main reason that the bladder dilates and contracts as it refills and empties, and the healing wound is never in an undisturbed and quiet state, which is so essential. In the second place you can hardly ever make the posterior vaginal wall come snug enough up against the anterior vaginal wall or bladder to prevent the sutures from giving way, because of the to-and-fro movement of the operating surface, caused by the refilling and emptying of the bladder. I have seen again and again cicatrical tissue as broad as my finger all along the denuded surface of the anterior vaginal wall, and in consequence I am on the pessimistic side of lauding operations for cystocele. The patient ought to be catheterized every four hours. This is unquestionably essential, but then, again, you run the chance of infecting the bladder and producing a cystitis.

Dr. Phillips speaks about the old Emmet operation. I have never seen Dr. Emmet perform the old operation; he has discarded it. While I was interne at the Woman's Hospital he always performed the one that is generally discussed in books like Dudley's and Kelly's, and is the one universally regarded as the best operation.

THE PATHOLOGY OF TYPHOID FEVER

S. MARX WHITE, B. S., M. D.
Minneapolis

It is not my purpose in this short paper to review the well known facts concerning the morbid anatomy, pathological histology, and bacteriology of typhoid fever, upon which the modern conception of this affection rests. I shall point out, as well as I can in the short time alloted, the importance of the more recent work, and shall discuss some of its practical bearings with especial reference to its value in diagnosis.

For many points concerning the localization and distribution of B. typhosus during an infection, we have only recent work upon which to depend. The reason for this is twofold:

1. The difficulty of specific determination of this organism has been fully appreciated only within very recent years; and therefore some of the older results must be disregarded.

2. The difficulties surrounding the isolation of B. typhosus, particularly from feces and blood, were formerly unsurmounted, and, though still great, many of the failures to obtain the organism have been shown to be due to faulty technique. It is only by practical recognition of the fact, within the past three years, that shed blood may be strongly bactericidal to certain organisms, among these the typhoid bacillus, that the most valuable results have been obtained in the examination of blood of typhoid-fever patients during life.

A mass of evidence has gradually been accumulated to show that under certain circumstances, B. typhosus may be present in almost any organ or tissue of the body, and may there set up changes, either during the attack or convalescence or at varying periods after all evidence of the primary typhoid infection has disappeared. As organs and regions from which B. typhosus has been isolated, it is necessary only to mention the intestinal contents, intestinal lesions, mesenteric lymph glands, spleen, liver, gall-bladder, kidneys, urine, lung, pleural cavities, central nervous system and membranes, rose spots in skin, bone marrow, and periosteum, as well as those cases in which passage from the maternal circulation to the

fetus has been shown, to convince us that we have here, in all probability, a form of infection in which there may be a wide-spread distribution of the infecting organism.

Thiemach[1], 1895; Besson[2], 1897; Block[3], 1897, collectively, obtained the bacillus from the blood in only 2 of 32 cases, but they used only small amounts of culture-media. Schottmüller[4] plating the blood, mixed with agar, got positive results in 40 of 50 cases. Hewlett[5] (20 of 24 cases) Auerbach and Unger[6] (7 of 10 cases) and Castellani[7] (12 of 14 cases), obtained even better results by mixing blood, obtained with an aseptic syringe from a vein, with large amounts, 200 to 500 c. c., of broth in flasks, thus diluting and diminshing thereby its bactericidal power. Courmont[8] was successful in all of 9 cases. That these results represent not only the fatal but the ordinary and mild cases, is shown in Hewlett's[5] series, where the bacillus was found in the blood in both severe and light cases. Castellani[7], Courmont[8], and others also obtained the bacillus in light cases. Biffi and Galli[9] in a study of thirty mild cases of typhoid fever obtained the typhoid bacillus from the spleen in 27. This seems also proof of its presence in the blood in all cases.

The experience of Cole[10] was interesting, as he got positive results in 11 of 15 cases. In the last 7 cases he used a much larger amount of nutrient broth for his cultures, and obtained a positive result in each.

Among the cases just referred to, a number are of especial interest from the early stage at which bacilli were found and from the relationship to the Widal reaction. Thus Hewlett[5], in his 20 positive cases, cites Case III, in which blood-cultures were positive on the 5th and 11th days; the Widal reaction negative on these days, but positive on the 13th day. In Case V blood-cultures were positive on the 8th day; Widal negative the 7th, 9th and 12th days, and positive the 15th day; and in Case XV the blood-cultures were positive the 4th and 10th days; the Widal was suggestive the 4th day, and positive the 6th day.

Castellani[7] obtained blood only once in the first week (B. typhosus was present). This was in a mild and atypical case, lasting only two weeks, and without roseolæ or splenic enlargement, in which the Widal was negative throughout. In two other cases, Widal was negative, but cultivations from the blood showed B. typhosus.

In Cole's[10] series of 11 positive cases, he obtained the bacillus in 5 before the Widal reaction was positive. His earliest positive blood-culture was on the 6th day.

Courmont[5], writing of the Lyons epidemic of 1901, states that the cases showed an immense number of tardy serum reactions, and in his 9 cases, all of which gave positive blood-cultures, 4 gave absolutely negative serum reactions, and in 2 blood-cultures were obtained on the 5th and 9th days, respectively, while the serum reaction was negative in one on the 5th, 13th and 15th days, and positive on the 22d day, and, in the others, 6 trials resulted negatively, and a positive result was obtained only after recovery on the 49th day.

Gwyn[11] cites a case in which the Widal was negative until four days after the cultivation of the organism, late in the disease.

It will thus be seen, that in both mild and severe cases of typhoid infection, B. typhosus has been isolated not infrequently before the appearance of the Widal was determined.

It has been evident for some time that, as stated by Gwyn, "Absence of reaction till late in the course of the 'septicemic' cases is a remarkable but not constant phenomenon."

But the above observations, given somewhat in detail, indicate that in many cases of tardy or transient serum reactions, the cultivation of the bacillus from the blood may be of immense value in establishing an early diagnosis, and indeed, in some cases, where the reaction is absent, particularly in severe "septicemic" and in light atypical cases, it may be our only means of establishing the diagnosis on a biological basis. It must not be forgotten that some of the instances of supposed absent reaction where daily tests, carried on into convalescence, have not been made, may be only cases of transient or tardy reaction. It must also be remembered that cases of obscure infection with the so-called paracolon bacillus may have been occasionally included here, owing to our imperfect knowledge of the bacilli related to the typhoid and colon groups.

Not only is it true that the bacilli may be obtained early from the blood, but that they may be distributed by the circulation to points of localization in certain regions, and from these obtained early in pure culture, is now well

established. From rose spots, Neufeld[12] obtained B. typhosus in 13 of 14 cases. In 7 of 8 cases, where comparison was made, a diagnosis was possible, on an average, six days before the Widal test was positive.

Curschmann[13] succeeded in 14 of 20 cases, Richardson[14] in 5 of 6, and in all the latter, six days on an average before a positive Widal was obtained.

The isolation of the bacillus from certain excreta, whilst evidencing their presence at some time in the blood, is not of much diagnostic value, owing to the lateness of their appearance and the difficulties of isolation. It is, however, of immense practical importance from the pathological and hygienic standpoint.

In the urine a large number of studies lead to the conclusion that B. typhosus may be present in from 20 to 30 per cent of all cases, not appearing, as a rule, before the 15th day (Hiss).[15]

Concerning the feces Hiss[15] states as his conclusion, after studying a large number of cases, and with a critical review of the literature, "that the bacilli do not occur in the feces, in numbers at least sufficient for recognition, much before the middle of the second week, or, in other words, about the time the intestinal lesions are well advanced and ulceration is occurring; and in the light of our present statistics on the subject, which may, of course, be modified by subsequent research, it seems most rational to look upon the presence of the organisms in the feces, especially in fair numbers, as indicating an ulcerating condition of the intestine, and that the organisms practically appear and disappear with these lesions, but when the lesions commence to break down, they increase as this process advances, and commence to decrease as the ulcers begin to granulate and heal." Higley[16], in a recent communication, has given the 10th as the average day on which he was successful in obtaining B. typhosus from the feces in 18 cases, and the 12th as the average day on which the Widal reaction in 15 cases was found positive. The earliest day of isolation of B. typhosus from the feces was the 6th.

Just how far the presence of B. typhosus in the gall-bladder affects the intestinal flora, may not, with our present knowledge, be estimated, but this factor may need later to be reckoned with.

Geisler claims to have found B. typhosus in the sweat

in one instance, and Edel[17] and Dieudonne[18], in the sputum. Besson[19] reports the recovery of the bacillus from the tonsils of 6 out of 10 cases investigated.

Having considered, though briefly and in a fragmentary way, some of the evidence concerning the distribution and habitat of the typhoid bacillus during human infection, we will now turn to a brief consideration of the nature of the typhoid lesion, and its relationship to the infecting organism. Since investigators have been unsuccessful in producing, by animal inoculation, lesions comparable to those found in man, we must rely in great part for our knowledge of their nature, and relation to the organism, upon a study of human tissues under conditions which cannot readily be controlled. Thus, experimental evidence is lacking to show just how far the bacillus or its toxine, each acting independently, is capable of producing the characteristic reactions on the part of the tissues.

By far the most important recent work on the histology of the typhoid lesions in man is that of Mallory[20]. His work shows that there is produced a proliferation of endothelial cells, which acquire malignant properties, becoming markedly phagocytic. These phagocytic cells are produced most abundantly along the line of absorption from the intestinal tract, both in the lymphatic apparatus and in the blood-vessels, and are almost entirely responsible for the swelling of the lymphoid tissues of the intestine, mesentery, and spleen. These phagocytic cells are found all over the body in lymphatic spaces and vessels, and are produced by distribution of the toxine throughout the general circulation. They may even get into the general circulation, a few at least coming from the abdominal lymphatics through the thoracic duct.

Mallory believes the necrosis of the intestinal lymphoid tissue to be accidental in nature, caused through occlusion of the veins and capillaries by fibrinous thrombi, and that the focal lesions are due almost entirely to the action of the toxine and to embolism by endothelial and phagocytic cells. His closing paragraph reads: "Histologically, the typhoid process is proliferative, and stands in close relationship to tuberculosis, but the lesions are diffuse and bear no intimate relationship to the typhoid bacillus, while the tubercular process is focal and stands in the closest relationship to the tubercle-bacillus."

Whether the primary, incipient changes are due to the absorption of toxines from the intestinal canal, or whether the typhoid bacillus gains entrance to the lymphoid tissue before any lesion, even the most minute, is produced, is of less interest for the moment than the question whether the intestinal lesions are due primarily and perhaps chiefly or entirely to a toxine originating in the intestinal lumen, or whether the bacilli, as well as the toxines, enter the tissues early before pronounced intestinal lesions and ulceration have occurred.

The view that there is an early bacillary invasion of the entire lymphatic absorption path, with also a relatively early invasion of the circulating media, both lymph and blood, and that this invasion may take place before ulceration has occurred in the intestine, is favored by the isolation of B. typhosus from the circulating blood as early as the 4th and 5th days of the attack.

That typhoid infection can occur without lesion of the intestinal tract, seems clearly established by Flexner[21], Harris[22], Lartigau[23], and others, but that it is rare and that slight intestinal lesions may be easily overlooked, that the lesions may be in an early stage or may have disappeared at the time of autopsy, while lesions in other portions of the body are still in progress, is emphasized by Opie[24]. Some of the cases of atypical and peculiar infection in which there is a wide-spread distribution of the organism, have even been styled "typhoid septicemia" (Flexner and Harris), "septicemic form of typhoid fever" (de Grandmaison), etc.

That the bacilli may colonize in the tissue during life, be in intimate association with specific lesions, and instrumental to a certain extent in their formation, has received confirmation by the work of E. Fraenkel[25], who has studied, by a special technique, excised roseolæ from 5 cases, and found the bacilli in colonies in these lesions, which are hyperplastic and, to a certain extent, also degenerative in their nature.

Although many of the complications and sequelæ of typhoid may be due to mixed infection, or not associated with the typhoid bacillus, certain cases have shown that this organism is capable of producing lesions in various tissues, and that some of the lesions may be suppurative or degenerative in type. Thus, McClintock[26] collects 19 cases of meningitis due to the typhoid bacillus, and re-

ports one case of brain abscess from which B. typhosus was isolated in pure culture. B. typhosus has been isolated not infrequently from suppurative lesions of bone and periosteum. Cases reported by Unger[27], Bruni[28], and others, leave no doubt that there may be a period after the primary typhoid infection in which the bacillus is lodged in the tissues and is latent, and if this be true, we must concede that these remote, tardy lesions are not purely toxic, but that the bacillus is capable of exerting its action locally, independently of the general, diffuse action of its toxine.

I shall not attempt to elucidate here the relationship between these atypical manifestations and the question of immunity, but I introduce them to show the capacity of the typhoid bacillus for producing lesions locally, and to suggest thereby, in connection with facts already stated, that this organism plays a part aside from the diffuse action of its toxine, in the production of the typical typhoid lesions throughout the body.

CONCLUSIONS

1. The typical typhoid infection is one in which there is an early wide-spread distribution of the B. typhosus, probably in moderate numbers, in the blood and lymph, and a colonization in various tissues.

2. The bacillus produces its chief action on the tissues by means of a mild, diffusable toxine, which induces, primarily, proliferation and phagocytosis, and, secondarily, focal leisons in which necrosis may occur.

3. The bacillus is capable of acting locally, and the presence of the bacterial colonies may be the determining cause in the production of certain lesions during the primary attack and at varying periods thereafter.

4. The early distribution and localization of the bacillus afford us means whereby an early and accurate bacteriological diagnosis may be made when the Widal reaction is delayed or absent, and may possibly afford us a diagnosis in the majority of cases before the Widal reaction appears.

BIBLIOGRAPHY

1. Thiemach.—Ref. Cent. f. Bakt. u. Inf'nk, XVII, 1895, p. 475.
2. Besson.—Rev. de Méd. XVII, 1897, p. 205.
3. Block, E. B.—Bull. J. Hopk. Hosp., VIII, p. 119, June, 1897.
4. Schottmüller.—Deut. Med. Woch., 1900, No. 32.
5. Hewlett, A. W.—Med. Record (N. Y.), Nov. 30, '02, Vol. 60, No. 22, p. 849.

6. Auerbach and Unger.—Deut. Med. Woch., 1900, No. 49.
7. Castellani, A.—Cent. f. Bakt. u. Inf'nk (Orig.), XXXI, No. 10, Apr., '02, p. 477.
8. Courmont, J.—Jour. de Phys. et de Path. Gen., Tome IV, 1-15, Jan. '02. p. 155.
9. Biffi et Galli.—Riv. Crit. di Clin. Med., 1901, No. 2 & 3, Ref. Cent. f. Klin. Med.—1901. Jahrg. 22, p. 553.
10. Cole, R. I.—Bull. of J. Hopk. Hosp., Vol. XII, No. 124, July, 1901.
11. Gwyn, N. B.—J. Hopk. Hosp. Reports, VIII, 1899-1900, p. 385.
12. Neufeld.—Zeit. f. Hyg. XXX 3, p. 499.
13. Curschmann.—Münch. Med. Woch., 1899.
14. Richardson, M. W.—Jour. Bost. Soc. Med. Sci., Vol. IV, 1900. p. 110.
15. Hiss, P. H.—Med. News (N. Y.), May 11, 1901, Vol. 78, No. 19, p. 728.
16. Higley, H. A.—Med. News (N. Y.), Mch. 29, 1902, Vol. 80, No. 13, p. 584.
17. Edel, P.—Fortsch. d. Med., 1901, No. 14.
18. Dieudonne, A.—Cent. f. Bakt. u. Inf'nk, Oct. 15, '01.
19. Besson.—Rev. de Med. XVII, 1897, p. 205.
20. Mallory, F. B.—Jour. Exper. Med., 1898, Vol. III, p. 612.
21. Flexner, S. J.—Hopk. Hosp. Reports, VIII, p. 242, '99-1900.
22. Flexner and Harris.—Bull. J. Hopk. Hosp., VIII, p. 259, Dec., 1897.
23. Lartigau.—Bull. of J. Hopk. Hosp., 1899, p. 55, also N. Y. Med. Jour. 1899, p. 158.
24. Opie, E. L.—Bull. J. Hopk. Hosp., Vol. XII, No. 124, July, 1901.
25. Fraenkel, E.—Zeit. f. Hyg. u. Inf'nk, Bd. 34, p. 482.
26. McClintock—Ref. Cent. f. Bakt. u. Inf'nk. XXXI, No. 10, p. 300.
27. Unger, E.—Deut. Med. Woch., 1901. No. 31, p. 522.
28. Bruni, C.—Annal. de l'Inst. Pasteur, X, 1896, p. 220.

Note—The brevity of this article has not allowed more extended references to the literature, and therefore only the most important articles, or those illustrating certain points, have been referred to.

DISCUSSION

Dr. L. W. Day: I want to thank Dr. White for his splendid paper, bringing our knowledge up to date regarding the pathology of typhoid fever. We are apt to lost sight of that pathology in our search after methods of treatment. I simply want to thank him for what he has suggested.

Dr. Geo. D. Head: I wish to pass around this chart of a very interesting case of typhoid fever. The case started out as a typhoid, and later was complicated with pneumonia, which in turn was complicated with empyema. The empyema was drained. Later on endocarditis developed and three distinct attacks of nephritis with intervals of two or three weeks; and the boy, 16 years of age, is alive and will recover.

The highest point the temperature reached was 107 2-10 degrees. The patient was reduced to a mere skeleton. The case proves that one should never despair of the life of a sick child. The chart, by the way, shows only a portion of the history.

Dr. Mary S. Whetstone: Did the boy reside in this city for some time; and, if so, in what portion of the city?

Dr. Head: I really cannot say as to that. He did not come into my hands until he was in about the second week of typhoid, and I do not know much about his history, except

that his father is a Congregational minister and his name is Harold Nott.

Dr. Mary S. Whetstone: I thought there might be some malaria in the system that might have had something to do with the high temperature.

Dr. Head: In answer to that I would say that previous to his illness the boy was perfectly well; had never been out of the state, and never had any malarial infection. He gave a Widal reaction, and had rose spots and all the symptoms of typhoid. Pneumonia developed about the twentieth day of his illness.

Dr. A. S. Whetstone: During what time did the temperature rise to 107°

Dr. Head: During the pneumonia.

Dr. S. M. White (Essayist): I have practically nothing to say in conclusion, except, possibly, this: In bringing out many of the points in the paper it was necessary to discuss the details considerably. I think recent work has shown us the value of bacteriological examination of the blood, not only of typhoid-fever patients, but of patients affected with many other diseases, and further work will be of greater value still. The work done the past two years demonstrates very nicely to-day the limitations of the Widal reaction, on which we place so much reliance. For instance, in some of these cases of typhoid fever in which the Widal reaction was absent throughout, or in which the Widal reacton was not present until late in the course of the disease, a bacteriological examination has enabled a diagnosis to be made in the early part of the second week—even by the middle of the first week—and we all know a knowledge of the disease in its early stages is valuable.

Dr. A. S. Whetstone: Would you say that if the disease is recognized in its early stages, that typhoid fever could be aborted?

Dr. White: These illustrations have had nothing to do with that phase of the subject, but I believe that in the literature of to-day we have to study we have evidence sufficient to convince us that treatment directed toward the intestinal tract would be ineffective in aborting the disease on account of the early invasion of the tissues and the blood by the micro-organism.

Section of Surgery

J. W. ANDREWS, M. D. CHAIRMAN

CONSERVATISM IN SURGERY

J. W. ANDREWS, M. D.
Mankato

When the apostle Paul was making his noble defense before King Agrippa, Festus cried with a loud voice, and said: "Paul, thou are beside thyself; much learning doth make thee mad." So it is with the young surgeon. He yearns to do surgery, hence he goes to the centers of learning, spends a few weeks, at most, witnessing brilliant operations by expert operators, and from this limited experience, or rather observation, he goes at once into his field of practice. The operations which he has seen seem so easy and simple that his finger-tips burn for morbid tissue and scalpel. He is therefore bold, venturesome, full of wisdom, and non-conservative. He will recommend and urge operations in cases which the expert surgeon, mature in knowledge and experience, would pronounce inoperable. The haste and lack of conservatism in these young surgeons reminds one of the old adage: "Fools rush in where angels fear to tread."

What I have said applies especially to that oft-performed and much-abused operation, appendectomy. But, gentlemen, I do not wish to be misunderstood as casting unjust reflections upon young surgeons, for it is not the tyro alone in surgery that is guilty of non-censervatism; he is not the only one that has been rash in operating on cases of appendicitis. Some of our best known and most skillful American surgeons have, in my judgment, not only been guilty of ill-timed appendectomies, but their teaching has led many surgeons less skillful than them-

selves to do likewise; and the fatalities in this operation can be counted by the thousands, when cool judgment and conservative surgery would have saved many lives. Two well known surgeons in this country have too often said, upon the platform and in print, when you diagnose a case of appendicitis, operate as quickly as you can get the patient on the table. Gentlemen, this advice, unqualified, is bad and dangerous in the extreme, and should be relegated to the dead past. It is all right and exceedingly wise to operate upon a case of appendicitis as soon as the diagnosis is made, provided that the patient is seen early and the diagnosis is made early.

But right here I beg to differ from the views of some surgeons, namely, that there is a definite time-limit. By no means would I say as a hard and fast rule, if you get your case within thirty-six hours from the onset of the initial chill, operate; nor would I say, if you do not get your patient within forty-eight hours, do not operate. I am sure it is safer to operate upon some at the end of three days than it is upon others at the expiration of the first twenty-four hours. I think we should be governed more by the symptoms than by the time. If twenty-four hours have elapsed and the temperature is running from 102° to 103°, and the pulse 110 to 120, do not operate; let such a patient alone, so far as surgical interference is concerned. It has been said too often that in this condition an abscess will form, is forming, and will rupture into the general peritoneal cavity, and an inevitably fatal general peritonitis will follow; an operation will prevent this, the precious life be saved, and the operation will give the patient the only chance to get well.

Gentlemen, the counsel should be in the above indicated case that an operation takes away the patient's only chance to get well. Conservative surgery steps in and says: Put this patient to bed, give him very light nourishment, possibly, as Dr. Ochsner, of Chicago, recommends, no nourishment at all, except rectal feeding; let the bowels rest, and permit Nature, who is always conservative, to build up a wall around the suppurative area; and that will save the patient from rupture and fatal peritonitis.

Lest I should be misunderstood, I want to say, before I leave the subject of appendicitis, that I believe it highly conservative to operate early. I have known many physi-

cians who seeing and diagnosing appendicitis in the very early stage would counsel the patient and friends about as follows: This is a case of appendicitis, but it is in the first stage; it is just commencing; it may have to be operated upon, but as appendicitis is often cured with medicine, let us try for a day or two, and see what medicine will do. If the patient is not better, then we will operate. I wish to be emphatic in saying that no more erroneous and dangerous counsel could be given. It savors of ignorance; it savors of cowardice; it is all wrong, and there is nothing right in it. It is conservatism in an inverse ratio, and has cost many valuable lives. One thing upon which surgeons do agree is this, namely, if a patient has passed through an acute run of appendicitis and has sufficiently recovered to be around about his business again, then operate, that is, operate in the interval.

In some forms of cancer there is as little regard for conservative surgery by some surgeons as in appendectomy. This is especially true of epithelial cancer of the lip. No form of malignant disease is more amenable to surgical treatment, provided that treatment is administered early; otherwise there is no form of malignant disease where surgical interference is more disastrous. Time is not an element in this disease. One many have an epithelial cancer of the lip in mild form for many months; indeed sometimes for several years, and the lymphatics remain uninfected. But if the neighboring glands are involved, then I say conservatism demands non-interference surgically. I am aware that in this position, many physicians, more able than myself, will differ with me. They will attempt to substantiate their position by saying that, if in that condition the diseased glands, as well as the cancer itself, are all removed, in that way a radical cure is effected. This is a beautiful theory and is theoretically true, but practically it is untrue. Practically true, if every particle of diseased glandular tissue could be removed; but as a matter of fact it is not, and a surgical operation is like running a rake over a smouldering straw-pile: the straw will all burn without the rake, but it will burn quicker after the rake, because new avenues are opened to which the fire will spread. In these cases where the disease has so far advanced as to produce involvement and induration of the neighboring glands, the patient and his friends are too often told that an operation,

while it will probably not save, yet it will prolong, the life of the patient and will alleviate suffering. I do not believe it does, either. On the contrary, it shortens life and augments suffering. Again, I have heard physicians express themselves in pauper cases, as follows: The patient will die anyway, and he might as well contribute something to the science of surgery by submitting to an operation and allowing his physicians to watch and chronicle the results. This is exceedingly reprehensible. It is wrong in principle, and is non-conservative surgery. I have also seen some of our ablest and most conscientious surgeons remove epitheliomata of the lip in far advanced cases. I now have in mind two that were operated upon by a surgeon of eminence in the profession and skilled in his work. Both were most disastrous. Scarcely had the wound healed when the cancerous growth took on renewed and rapid action, and the only effect the operation had was to shorten life. Any surgical operation should relieve suffering and prolong life, and if it will not do one or both of these, it is not justifiable. I repeat, if epithelioma of the lip is not operated upon before the neighboring glands are involved, the surgeon had better let it alone, and turn it over to the hands of the physician to keep it clean and to relieve the suffering with opiates.

What I have said of cancer of the lip is likewise true of cancer of the breast and uterus. In the whole domain of surgery there is no field where so many ill-advised and unwarrantable operations have been performed as in the female pelvis. Could we be presented with correct statistics relative to the removal of ovaries and tubes we should simply be appalled at the great number of these organs that have been needlessly and ruthlessly removed. Not only has their removal been unnecessary, but it has been positively harmful. In the Spring of 1890, when I was doing post-graduate work in New York, one eminent surgeon of that great city was facetiously called by the students "Ovaries and Tubes," because of the great number of macroscopically healthy ovaries and tubes removed by him.

These rash operations have taught the profession a lesson in conservatism, but the goal is not yet reached. The late and lamented Professor Carl Schroeder, of Berlin, was the first to sound the tocsin. He was the first to resect an ovary; that is, to dissect out the diseased

ovarian tissue and leave the healthy part, thus preserving ovulation and menstruation. Later Von Winckle, Hoffmeier, Zweifel, and others advocated the same conservative operation, and reported many successful cases; that is, cases where an ovary had been resected, the patients cured by the removal of the diseased tissue, and the patients subsequently conceived and bore children.

Gentlemen, let us consider well the necessity of so doing before we remove from a young or middle-aged woman both ovaries and tubes.

Where double oöphorectomy is performed upon an unmarried young woman she loses, possibly to some extent, her sexual functions, which contribute largely to mental equilibrium. If this be a mooted question, certain it is, she is denied the opportunity, if not the legal right, to marry, and certainly she can never enter that most noble and honorable estate of life, namely, motherhood. A good rule to be governed by when a young woman presents herself with diseased ovaries and tubes, is for the physician consulted to ask himself: What would I do, or have done, were this patient my sister or daughter?

Surgery, in this, the morning of the 20th century, can do better things than to castrate young women, except in very aggravated cases. I believe that in a large number of cases of ovaries with cystic degeneration the diseased portion can be exsected and healthy ovarian tissue left so that the patient will still ovulate, menstruate, and may conceive.

I have only touched very lightly upon this subject. One reason for so doing is that I have for this Section a rather long and most excellent program. I shall, therefore, not consume further time with my address. Some surgeons seek to make a reputation by multiplying the number of operations they perform; but, in conclusion, let me say that the time has come when the surgeon's reputation is not to be builded upon the amount of work he does, but upon the quality—not how much, but how well; not the number of appendectomies, but the number of recoveries. More than this, the wise, careful selection of cases and a conservatism shown in the recommendations for operations will determine the reputation of the surgeon of the future.

CEREBRAL CYSTS, WITH PRESENTATION OF A CASE

J. W. MACDONALD, M. D., F. R. C. S. E.
Minneapolis

As far back as 1864, long before the question of cerebral localization had received much light, Dr. Hughlings Jackson described a class of epileptics in whom the convulsions begin with a conscious sensation in some definite part of the body, such as one half of the face, or one of the extremities. Following the sensations, or aura, convulsive movements of the muscles of the part quickly appear; the patient, as a rule, retains consciousness throughout, except when the convulsions become general.

It speaks volumes for the accuracy of Dr. Jackson's observations that he was able at that early date to positively affirm that the parts of the brain involved in epilepsy of this type were the convolutions on either side of the fissure of Rolando.

The experiments of Broca, Fritsch, Goltz, Hitzig, Ferrier and Horsley have abundantly proved the correctness of his views.

The convulsions in Jacksonian epilepsy begin in four different ways:

1. The "motor form."—This form begins with disturbance in the motor area, and the aura is felt in the face, the arm, the leg, etc.

2. The "sensory form."—In this variety one of the special senses is the seat of the aura. If a warning of an impending convulsion comes to the patient as a "sound," the affected aura is in the temporal region; if as a perversion of taste or smell, in the temporosphenoidal region; if as a vision, the occipital region is the part affected.

3. The "aphasic form."—In one class of cases the convulsion begins with spasm in one side of the face, immediately followed by loss of the power of speech. This may be the one symptom noted in the whole attack. In a right-handed person this would point to a lesion in the third frontal convolution in the left hemisphere, and in left-handed persons to a lesion in the corresponding area in the right side.

4. The "psychical form."—In this form there is no

convulsion. The patient suffers a temporary aberration of mind. He becomes maniacal or simply bewildered and stupid, and afterwards has no recollection of what occurred during the attack. In this class of cases the lesion is in the frontal lobes.

Partial or Jacksonian epilepsy may arise from traumatism of any degree of severity—from a slight injury to the integument, to the most violent injury—or it may appear weeks, months, or even years after the accident which was the original cause. The direct agent in producing the epileptic seizures may be a spiculum of bone, a dense cicatrix, a depressed fracture, or a clot of blood resulting in a cyst, which was the case in the patient I now present.

While the results obtained by the surgical treatment of cerebral tumors have been disappointing, most gratifying results have followed the operations of trephining in well chosen cases of epilepsy.

The statistics of Hale, White, and Allen Starr show that only two per cent of all cerebral tumors justify a surgical operation. Starr observed carefully 427 consecutive cases of epilepsy, and arrived at the conclusion that 26 were of organic origin, and suitable for operation, because it was possible to locate the lesion with approximate certainty. Out of 57 cases reported by Agnew, there were only 4 recoveries, while 32 others were temporarily improved.

The ordinary type of general epilepsy is beyond surgical aid; but a spiculum of bone, a dense cicatrix, a depressed fracture, and a clot of blood resulting in a cyst, are causes which are within the surgeon's power to remove.

The following rules may serve as a guide in the selection of cases:

1. Cases of ordinary general epilepsy in which the lesion cannot be definitely located, are not operable.

2. In traumatic epilepsy, when the local symptoms point to a definite locality in the brain, and the scar or other injury corresponds, the trephine opening should be made at the position of the scar.

3. When the local symptoms do not correspond with the scar the position of the scar should be disregarded, and the opening made at the point indicated by the localizing symptoms, unless it be found that the scar itself is

very sensitive, and that simple pressure upon it is sufficient to bring on a fit. In this case the scar only should be excised, and the result watched.

4. In epilepsy of a general type following depressed fracture, but in which localizing symptoms are absent, the trephine opening should be made at the seat of the fracture.

In examining a patient for epilepsy, the history requires the closest attention; the minutest details of the accident, notwithstanding it may have happened years before, must be thoroughly reviewed. To examine the head for scars and depressions, the scalp must be shaved. The character of the convulsions must not be received from the patient's friends, as they are usually unable to describe accurately what took place during a convulsion, their minds having been occupied in the care of the patient. When possible, the surgeon himself should observe one of these fits, or at least have the evidence of a trustworthy nurse. Care should be taken to ascertain the part in which the aura begins, the muscles first affected, and the order in which the several areas are attacked. Thus an aura beginning in the leg, followed by twitching of the extremity, then twitching of the arm of the same side, and, finally, twitching of the muscles of the face and of speech, would indicate that the irritation began in the upper third of the Rolandic area, and traveled downward to the lower end and front of the fissure.

Having studied the character of the fits, the muscles involved, and the area of the brain, which is the seat of the disturbance, the question of operation is to be considered.

CASE

In June, 1886, when 6 years old, E. P——, aged 20, was knocked down by a horse, the hoof of the animal striking on her head and crushing in the right parietal bone. She lay unconscious for fifteen hours, and left hemiplegia lasted three weeks. Six weeks afterwards a hernia cerebri appeared, and was removed by Dr. Soring, of Valparaiso, Ind., by means of a silk ligature, the process lasting three days, two and one-third ounces of brain substance being thus removed. Twenty-one pieces of bone came away at different times. In December she was able to leave her bed, but remained very weak for about a

year. After this she gradually gained in strength, and remained apparently well between the ages of 8 and 13, when she began to menstruate.

Six months after the commencement of menstruation she began to have twitchings on the left side of the face, involving the corner of the mouth, the nostrils, the eyelid, and the root of the tongue. These twitchings came on just before and sometimes just after the menstrual period. They became more and more frequent, lasting for about a week at each menstrual period. About a year and a half before she came to me, she had a severe epileptic convulsion, lasting fifteen or twenty minutes. She remained free from convulsions for a year, when she began to have them every month. The last two weeks before the operation she had them every night. The twitchings continued unabated during all of this time, always confined to the left side of her face, i. e., the corner of the mouth, the nostril, the eyelid, and the root of the tongue.

Nov. 27, 1900. On examination, I found a large scar over the right parietal bone, measuring four inches in length, and an inch in breadth. It runs parallel with the middle line of the head and three inches from said line. Above this is a depression about the size of the end of one's finger.

Operated Nov. 27. Removed a button of bone one and one-half inches in diameter. The dura mater bulged into the opening; and when the membrane was cut about an ounce of clear watery fluid escaped. A drainage of strands of catgut was inserted, and the wound stitched up. She made a rapid recovery from the operation.

The twitchings and convulsions stopped after the operation, until February, when she had a convulsion and also some twitchings of the face. In April she had another, and a third in June. Since then she has remained perfectly free from convulsions until the present time, one year and eight months from the date of operation.

DISCUSSION

Dr. J. H. Dunn: I would like to ask the doctor in regard to one point, and that is whether the cyst-wall was drained or whether it was removed. He is to be congratulated on this case, because, in my experience, these cysts due to traumata in this region are often benefited by surgical interference; but I believe it is not the usual experience that so complete a cure is effected as in this case. Such a result is comparatively rare.

I have operated on several cases, and found cysts at the point of the former injury, and they have been bettered by operation, but I do not think there has been one that has been entirely cured, and as I understand it that is the general rule. During the last year I met with two cysts within the skull, that have interested me very much, perhaps largely because I was somewhat in doubt as to their nature, and I would like to report them with the idea of receiving some information on the subject. Perhaps it would take too much time to recount them both, so I will only mention one. The case was one of my brother's in St. Cloud. A woman came to him with head symptoms chiefly, with pain and congestion of the head, but the most marked symptom was the projection of the eye. It was projected from the socket, and downward, so it could be seen clear across the room. We thought from the symptoms that it was some cranial growth, but it was a puzzle how it could force the eye out in this way. I decided to operate. I opened the skull above the eye, and found a cyst; that is, I found a large collection of fluid —of clear fluid—and there did not seem to be any definite cyst-wall. It seemed to me, as well as I could make out during the operation, that this was caused by what might be termed an inflammatory cyst, the membranes of the brain being adherent around this portion of the brain, and a pocket in which this large amount of fluid was secreted formed there. During the operation the eye went back into its place and the woman made a rapid and, I believe, a complete recovery, and has been well since. I have not asked my brother as to the condition at a recent period, but a month ago I know she was well. She was relieved of all her symptoms—her headaches and congestive symptoms—and this deformity of the eye. She had first consulted an oculist, because for a long time the displacement of the eye produced double vision. Some of the cysts that follow compound fracture of the skull, epilepsy following later, I had supposed were due to blood clots, and that the accumulation was between the membranes of the brain. The reason why I believe the results are so much more satisfactory in other regions of the brain, is because in this last case the lesion was in the frontal lobe, and the motor areas were not involved. The adhesion of the brain substance to the membrane of the skull and to the scalp over the motor areas keeps up the irritation, and while more or less relief is very frequent, I believe cures are very rare on that account.

I would like to ask the doctor to say something more about the character of the cyst, whether it had a definite cyst-wall, and whether it was removed or simply drained.

Dr. J. W. Macdonald (Essayist): I first desire to thank Dr. Dunn for his courteous criticism. In answer to his question as to the existence of a cyst-wall, I will say the collection of fluid seemed to be between the layers of the membranes of the brain, and I could find no structural cyst-wall. My idea was that it had been originally a clot of blood, and the cyst formed

as a consequence. I drained it and looked very closely for a cyst-wall, but satisfied myself there was no such structure. It seemed to be retained between the dura mater and arachnoid, and was encysted, just as we find in the pleural cavity certain circumscribed collections of fluid.

RECTAL PROLAPSE

C. H. MAYO, M. D.
Rochester

Prolapse of the rectum is fortunately not a common ailment. In children it usually follows an attack of either diarrhea or constipation, and more often partakes of the character of invagination from the sulcus, so frequently found between the anus and outer fold of the prolapse.

The somewhat straighter line of the sacrum and lessened curve of the rectum tend to favor the condition. In these cases cure is usually accomplished by rest in bed and adhesive strapping of the buttocks. The supports are temporarily removed for defecation, which is accomplished in the reumbent position, aided by cold water enemata. Linear scarification may be necessary in obstinate cases, and some employ acid applications.

Rectal prolapse in adults is a very serious affair, and it is with reference to these cases that I have interested myself in this paper. The term anal prolapse is usually limited to those cases which have a prolapse of only mucous membrane with projecting fold of about an inch in length. The rectum has a normal range of movement to accomplish its functions. Its position is maintained by perirectal tissue, fascia, sphincter muscles, the levator ani, and rectococcygei muscles. The relaxation or giving away of these supports tends to permit prolapse.

The adult prolapsus recti is composed of all the coats of the bowel, with a projection from three to eight inches from the anal ring, the diameter of the mass being from three to five inches. The projecting mass is continuous with the skin at the anus, and the outer layer does not pass within the anal ring, showing that it is not an invagination. The sphincter ani is so dilated that it lacks

all power to aid in the retention of the bowel. These patients describe the condition of the sphincter as being normal previous to the beginning of the disease, and after operation, relieving the condition, the tone of the sphincter gradually returns, which would tend to prove that relaxation of the sphincter is secondary and has but little to do with causing the prolapse.

From the abdominal side it is noticed that the peritoneal fold of the floor of the pelvis is extremely loose, and during the condition of prolapse this peritoneal fold extends completely without the body into the mass, constituting a hernial sac surrounding all but the posterior portion of the rectum. It is possible, therefore, although rare, to have also a hernia in the tumor.

The methods of cure have been numerous, which is an indication of the extreme intractability of the condition. They have been from below by linear scarification, the application of acid, excision of a wedge of bowel and sphincter, excision of protruding mass, posterior attachment of bowel near the coccyx, and the wearing of mechanical support. From above, the methods have been artificial inguinal anus, suture of the bowel to the parietal peritoneum, suture of the mesentery to the parietal peritoneum, suture of folds of mesentery to mesentery, folding the lumen of the bowel into itself longitudinally, and, last, the method which I wish to add, restoration of the peritoneal floor of the pelvis.

Linear cauterization as advocated by Van Buren has had an extensive application, and for the less severe cases of prolapse has been fairly successful. The knife edge of a Pacquelin cautery is employed to make from four to six three-inch burns parallel with the bowel, but not through the mucous membrane. The cuts penetrate the external sphincter. The result is a contraction and increased rigidity of the bowel and sphincter. Nitric acid or the acid nitrate of mercury is occasionally employed in chosen cases. Under an anesthetic the bowel is dried, and the acid well rubbed into the exposed mucous membrane and rapidly washed off. The method may need repeating, yet frequently proves adequate.

Verneuil and numerous others have anchored the rectum, the rectopexy being by a posterior incision from the anus to the coccyx, the bowel not being opened. Mikulicz has done the most to advance amputation of

the mass as a method of cure. A circular incision is made through the outer fold of the prolapse near the anus, and is of sufficient depth to expose the peritoneum, which is completely closed by a running suture; and the amputation is completed through the inner fold, and the mucous membranes coapted by suture. There are many slight modifications of this procedure. Ray makes the same incisions, but carefully peels back the peritoneal fold, ligating it as a hernial sac, and suturing the mucous incisions. Geo. R. Fowler makes about the same anterior incision, leaving a short cuff of mucous mem-

Rectal Prolapse

brane. A short incision is made clear through both walls of the prolapse, and a suture passed on the proximal side of the incision. The suture line is continued entirely around the prolapse. The incision is increased

only after each suture is passed, thus making a bloodless amputation, the cuff of mucous membrane covering the suture line. These operations involve, from anatomical conditions, considerable secondary risk from infection.

The excision of a wedge of both sphincter and prolapse was frequently employed a few years since. Various apparatus have been devised to support the anus, thus preventing the prolapse. The more common are soft-rubber balls, water pads, and various truss appliances, which are of but little service.

A considerable number of cases have been reported in which inguinal colostomy was made to relieve the difficulty, after the method of Jeannel's colopexia. This is rarely employed now, yet it is an indication of the sufferings of these patients. Anchoring the bowel above in some manner without opening the bowel, is at present growing in favor. Noble sutured to the rectus, but the usual method is to suture to the internal oblique by means of a McBurney gridiron incision. The sutures are of slow-absorbing or permanent material, from one-half to three inches of bowel being attached. F. W. Parham, of New Orleans, reports one case of peritoneal suture of the lower sigmoid in a person who was able to produce or reduce his prolapse by voluntary effort, the latter being a rare attainment. George A. Peters, of Toronto, has devised an operation which proved very successful in two cases, one a child, the other an adult. Through a median abdominal incision the anterior wall of the rectum is folded into itself by suture, practically forming two tubes, the posterior being the mucous, the anterior being peritoneal, projecting into the lumen of the bowel. The sutures are interrupted, and commenced as low as can be reached. This narrows and stiffens the rectal wall for a space of three or four inches. In the child the same sutures were also attached to the parietal peritoneum and abdominal wall. The latter attachment was not made in the adult case.

The method which we have found serviceable in St. Mary's Hospital in two cases has been to restore the rectovesical floor in the male, or Douglas' pouch in the female. It is this fold that must form the hernial sac in a prolapse, and is always found so relaxed in these cases. The operation and plan was based upon an earlier opera-

tion done after Peters' method, which also proved successful so far as known.

Normally, the distance from the anus to the peritoneal fold is about three and one-half inches in the male, and two and one-half in the female. The peritoneal fold in the floor of the pelvis is shaped much like a horseshoe. The posterior layer covers the anterior and lateral walls of the rectum, then laterally it lines the walls of the pelvis, and it passes anteriorly up over the uterus in the female and the bladder in the male. The peritoneum enfolds the bowel at the level of the third sacral vertebra forming a true mesentery.

By applying numerous sutures of silk or Pagenstecker's linen to obliterate the peritoneal fold, catching deeply into the peritoneum in making the folding and, when convenient, catching the front or side wall of the rectal tube, as the suture line rises out of the lower pelvis, a firm support is built in the pelvis from three to five inches in extent, surrounding and attached to the prolapsing bowel. The sigmoid is dropped over the line of sutures in the new pelvic floor as a protection to the sutured surface.

After any radical cure of prolapse, rest in bed for at least three weeks is advisable.

SOME OPERATIONS FOR MALIGNANT DISEASE OF THE MOUTH AND NECK

George W. Crile, M. D.

Cleveland, Ohio

The operations for malignant disease of the neck and mouth are based upon certain fundamental principles. The dangers may be classed as immediate, consecutive and remote. The immediate, or operative, dangers are shock and collapse; the consecutive danger is infective inflammation, especially pneumonia; and the remote danger is recurrence of the disease. Among the causes of shock and collapse, hemorrhage is prominent, not so much the hemorrhage from the larger vessels, but the ever-present oozing from the smaller ones. The complete control of

this form can be definitely obtained only by definitely controlling the arterial supply.

Temporary closure of the internal carotid, or temporary or permanent closure of the external carotid, minimizes the loss of blood.

Permanent ligature of the internal carotid as a routine measure to prevent hemorrhage during operations, is not available, because it carries with it a mortality-rate of about 11 per cent on account of cerebral complications. This method would cost more lives than it would save. Permanent ligature of the external carotid is available in the cases in which that artery may be reached without partially doing a tumor dissection in advance. In these cases two principles are violated: 1. The tissue of malignant tumors should not be subjected to greater manipulation nor closer dissection than is absolutely necessary for their removal on account of dissemination. 2. There will be preventable loss of blood in reaching the artery.

It follows that in cases in which ligature of the external carotid, on account of the position of either the primary or the metastatic growth, involves more than the minimum loss of blood or more than the minimum manipulation of the tumor, temporary closure of the common carotid should be done. The unilateral anemia of the neck, face and mouth thus produced gives other advantages quite as important as preventing the loss of blood. The field of operation is kept clear, dissection may be made correspondingly more precisely and more quickly, and the entrance of blood into the respiratory tract obviated. Certain operations that are most difficult are converted into cadaver dissections.

The writer has closed the carotid arteries 32 times since 1897, and has observed no unfavorable side effects. As a means of controlling arterial hemorrhage it is absolute. The artery should be subjected to only sufficient pressure to approximate its walls. More than this is alike unsafe and unnecesary. Closure of the lumen requires but little pressure. Caution against a greater pressure must be emphasized.

The facility and accuracy of dissection in the bloodless field, especially in the region of the important vessels and nerves, and more particularly in the dissection within the mouth, is so much facilitated that not only may more ex-

tensive operations be done, but they may be done more safely.

Next in frequency to hemorrhage, in causing shock and collapse, in this group of operations, is direct or reflex inhibition of the heart or of the respiration. This is due to injury of the vagus or its branches,—notably the superior laryngeal,—while the trunk of the vagus may be considerably manipulated without producing changes in the heart or the respiration. The superior laryngeal, either in its terminus in the larynx or its trunk, causes reflex inhibition on even slight manipulation.

The effect upon the heart may be wholly avoided by administering a physiologic dose of atropin prior to the operation; but there is no drug known whose constitutional action prevents respiratory inhibition. Cocain locally applied, either upon the trunk of the superior laryngeal or upon the laryngeal mucosa, prevents reflex inhibition of the respiration and the circulation.

The intralaryngeal use is practical; the application upon the trunk is rarely so. In the deep dissection in the angle formed by the ramus of the jaw and the mastoid, slowing of the pulse and slowing or cessation of respiration are frequently observed. This is more particularly true in difficult dissections in closely fitting tumors, necessitating correspondingly greater mechanical disturbance of the superior laryngeal nerve. In a number of cases I have had simulataneous observations made upon the respiration, the pulse, and the blood-pressure. These agreed perfectly with the experimental data; i. e., respiration and the pulse were both slowed and the blood-pressure fell.

The conventional standard for judging the state of the patient is by the rapidity of the pulse, and its volume and tension. There is under these circumstances good opportunity for misinterpretation. As an illustration: A patient in reduced health is undergoing an extensive neck operation; the pulse has crept gradually up to 140 or 150; the deeper angle between the ramus of the jaw and the mastoid remains to be dissected; during its dissection the pulse drops to 130, then to 120, then to 110, and is of good volume. Almost any anesthetizer would consider his patient improving, yet during this time the sphygmomanometer would show that the blood-pressure is falling, perhaps rapidly falling. The respiration becomes simultaneously slowed, perhaps fails. However, after the

operation is concluded and all inhibitory influences are removed, the pulse becomes rapid, of small volume, and low tension.

The immediate correct interpretation of these changes is of great importance to the operator so that he may conduct the operation accordingly.

If the technique involves an excessive amount of vagal manipulation,—as, for instance, its resection,—it is well to inject cocain into its trunk, distal to the point of severing. I have made unilateral resection of the vagus five times. It did not seem to complicate the case more than increasing the pulse-rate several beats per minute, and producing permanent hoarseness. Pneumonia did not develop.

Bilateral resection is not to be considered. In all the operations extensively involving the vagi, the tendency to respiratory failure is marked. This is best met by alternating applications of ice and heat upon the abdomen or chest, with artificial respiration in extreme cases.

These, then, are the more important immediate dangers of this class of operations. Their prevention will go a long way toward controlling that important consecutive danger, namely, infective inflammation of the respiratory tract.

The inhalation of infective-wound discharges, if no blood has been inhaled, is not nearly so likely to produce an infective inflammation as in the cases in which blood has been inhaled.

If the patient is kept well upon the side, and the mouth cleansed as often as any fluid appears, providing this is done by a nurse experienced in this class of cases, so as to insure against undue annoyances, the danger of infective inflammation is slight.

This introduces the question as to the advisability of a preliminary tracheotomy. This operation somewhat reduces the patient and usually causes on its own account some inflammation, which is occasionally fatal. It prevents the patient's assisting in cleansing his mouth as effectually as he otherwise could. It is always attended by a considerable irritation and usually some coughing. Its advantages must be very considerable to compensate for its disadvantages.

In certain operations in which the upper respiratory tract is occluded tracheotomy is imperative. I use prelim-

inary tracheotomy less frequently than formerly. It gives an advantage in operations so far back in the throat that the wound is not easily accessible for cleansing, and its immediate and natural drainage is into the larynx.

In all the case in which, by the nature of the operation, pneumonia is probable, I have treated them as though it were sure to occur. The patient's chest is covered with a pneumonia-jacket, the air of the room is kept moist and warm, and the patient is placed in the sitting posture early, especially if an elderly subject. When possible he is propped up or gotten up at least part of the time from the beginning.

In the extensive mouth operations food and water should be given either per rectum or through a small tube introduced into the esophagus. A male cathether serves this purpose very well. In the cleansing and feeding, a spray in which there is a sufficient amount of cocain to relieve the tenderness, is useful. A special nurse night and day; attention to the minutest details; minimizing the dangers of pneumonia, are very essential. The final result will be permanent cure, if all malignant tissue is removed.

In all cases the removal of the cervical glands in the region of possible metastases should be none the less vigorously done than in cancer of the breast. The technique in attempting to accomplish this may perhaps be best given by describing an operation performed a little more than three years ago upon a patient 51 years of age. The operation was for a cancer of the floor of the mouth, involving the inner aspect of the jaw, the border of the tongue, and the submaxillary and the deep cervical lymph-glands.

Twenty minutes before the operation he was given a hypodermic injection of 1-6 morphin and 1-100 atropin. The common carotid and the internal juglar vein were exposed just above the clavicle. The vein was ligated in two places, and severed between. The artery was closed

Dr. Crile's Screw-Clamp

during the operation by means of the screw-clamp, shown herewith. The incision was then extended upward to a

point half an inch below, and anterior to, the angle of the jaw. From this point lateral incisions paralleling the ramus and the body, were continued. The skin was then reflected sufficiently to expose the gland-bearing area of accomplished or of possible infection. The sternomastoid muscle was found adherent to the underlying enlarged glands. It was then severed at its lower end at the point of ligature of the internal jugular vein. Starting below the internal jugular, the deep and the superficial fascia, the sternomastoid, the platysma, the submaxillary salivary gland, all the soft parts from the deep plane of the neck behind, and all the cervical glands, including all the gland-bearing tissue, were removed in a block. When the jaw was reached, the part involved was resected by sawing through at two places from the outside, the tongue was split longitudinally, the corresponding side of the floor of the mouth was separated from its attachments, the entire mass, including the portion of the tongue, floor of the mouth, portion of the jaw, submaxillary salivary and lymph-glands, muscles, fascia, metastases, jugular vein, and other soft parts, were removed in a block. The amount of hemorrhage was but trifling, and the duration of the operation was short. The patient made a good recovery, and after more than three years has had no recurrence.

The immediate or operative dangers are shock and collapse. They are caused by hemorrhage, too long duration, too much manipulation, reflex and direct inhibition of the heart and of the respiration. These may be largely prevented by an absolute control of the arterial blood supply by temporarily closing the cartoid artery, by preliminary injection of atropin, supplemented when possible with local applications of cocain.

The principal consecutive danger is infective inflammation, particularly septic pneumonia. This is most effectively obviated by a definite control of the blood-supply, to avoid the entrance of blood into the pulmonary tract and shortening the operative time. In certain selected cases tracheotomy is helpful.

After the operation the greatest reliance must be placed upon warm, moist air, careful feeding, constant

care of the wound, posture, and special nursing until granulations appear.

The ultimate cure depends upon the stage at which the disease is attacked and the thoroughness of the operation. The removal of individual glands is clinically unsuccessful. Especial emphasis is placed upon the advantage of removing *en bloc* all the gland-bearing tissue in which metastases may occur, beginning at the distal point, both because it is the point of advantage in the attack and because thereby the avenues for dissemination are effectively closed.

DISCUSSION

Dr. J. E. Moore: I am sure we owe a debt of gratitude to Dr. Crile for having appeared before us to-day to read this paper upon a subject in which he takes front rank in modern surgery.

We do not have secondary hemorrhage to-day; the secondary hemorrhage, so fatal in olden times, was usually due to sepsis. When a desperate case, such as the doctor describes, comes to me, the first thought that comes up is: Is it worth while to operate? The doctor's case teaches us that it is worth while, but the situation is this: The surgeon seldom has the privilege of selecting the operation, because the cases that we do not like to see are the ones that insist upon operation, and in those cases death invariably follows in a short time. If by the means the doctor has given us here we can make the operation worth while, we have something that will help the surgeon.

He has placed the mortality at eleven per cent; usually it is placed above that. It is yet to be seen whether this operation is to prevail, or whether Daubern's idea of completely removing the blood vessels is to obtain. The idea is to remove permanently the circulation, so as to prevent a relapse, although the circulation is quite rapidly restored, and I believe we shall get along with Dr. Crile's procedure, which is a much easier operation. Dr. Crile's procedure makes operations easy that are dangerous from their position only. I have reference to malignant growths in this locality, and this procedure simplifies matters; makes it easier, and removes the danger of operation.

I have had comparatively little personal experience in the matter. I have temporarily ligated the carotid, using a 16 catgut ligature so as to make it safe. I have used it very satisfactorily. I am glad the doctor finds preliminary tracheotomy less and less necessary. We all know it has added very materially to the mortality, and if he helps us in this procedure to avoid the necessity of preliminary tracheotomy he has done us a great good.

Dr. C. H. Mayo: Dr. Crile in his paper practically presented some new ideas on an old subject. He has succeeded admirably in practically applying the Esmarch constrictors to the neck. Last October Dr. Crile presented me some of his clamps, and last winter I used them in three cases, two of them large sarco-

mata, and the results were most excellent. I thought at the time of the first operation, when this clamp came off, I had better be on the lookout and catch as many vessels as possible, but when the clamp comes off there is almost no hemorrhage. It is easy during the operation to hold the carotid with the forceps. The mortality in ligating the common carotid he places rather low; in fact, I heard Dr. Fenger state that the mortality from all cause was thirty-two per cent—from secondary hemorrhage, sepsis or brain changes due to loss of circulation. It is true, as the doctor describes this operation, it is more important to have the common carotid artery than all else on one side, so you can take almost everything off. The vagus and phrenic nerves can be removed with less danger than the common carotid itself.

Dr. J. H. Dunn: I am not prepared to discuss this very excellent paper, but might say a word about the different methods of temporary ligation of the common carotid in the absence of these instruments. I had occasion twice to use this method, and I did not have the clamps. I used a tape—a very fine tape of gauze—which answered the purpose quite well. We do not always happen to have special instruments at hand. In the first case of temporary ligation I started out to do what I have frequently done in these cases; that is, ligate both external carotids, but having heard of the doctor's proposal, I substituted temporary ligation.

With my friend Dr. Dunsmoor, I feel we are under great obligations to Dr. Crile for bringing this important paper before us.

Dr. F. A. Dunsmoor: I had the good fortune to be introduced to Dr. Crile before I ever saw him. I happened to have two cases in which I used an impromptu compressor devised by Dr. Little instead of Dr. Crile's instrument. Dr. Little does not claim that there is any improvement on Dr. Crile's method. The idea was, in the absence of a perfect instrument, to put rubber, made out of small tubing, over slender artery forceps.

I can only congratulate any member of our profession who gives us something new to help us out. I can see a little danger in this operation, however, since a person who is not perfectly at home in diseased tissues of the neck may, by reason of the arterial trunk's being controlled, remove the very vessel he wishes to avoid, and he may, for the same reason, remove the nerve-trunks.

One of the points was brought out in an operation I saw made since I attended the American Medical Association in New York, and that is that a very low per cent of cocain is necessary to be used in these operations. I know a prominent surgeon in a New York clinic who used one-sixteenth of one per cent for injection in the nerve. I saw quite extensive work done in this way for radical cure of hernia. He named specialists who had used nothing stronger, and others who used as high as one per cent. I saw him lift the nerve with a one-sixteenth of one per cent solution.

The only thing I have to add to this is my congratulations. I remember of having met a Frenchman by the name of Murphy,

of intestinal-anastomosis-button fame, and there were a great many people who found much fault with that device, like this other Frenchman, by name of Dunn, under my wing here, who said he had been thinking of that same thing, but that Murphy got it before the profession first. I am very sorry I did not advise the profession of this method of controlling hemorrhage, instead of the man away down in Cleveland.

Dr. J. Warren Little: I do not rise to speak on the subject, but to call the attention of the Society to the fact that this is not the only good thing Dr. Crile has done. He has written an article on giving salt solution. I am sure in giving hypodermoclysis you have often wondered when you had given enough, whether you have given an undue amount, or what injury you have done. All these points have been brought out very nicely in his prize essay, and you will find it profitable reading. The doctor has also made a valuable contribution to our knowledge of anesthesia in an essay entitled "Block Anesthesia," for all of which we delight in doing him honor.

MORE CARE FOR FRACTURED CLAVICLES

T. J. Catlin, M. D.
Delano

One of the fractures most frequently met with is that of the clavicle. It occurs in those of all ages. The young are especially liable to this injury. Usually a diagnosis is easily made; a prognosis that the patient wil fully recover promptly given; and the most showy dressing found in the books applied. Much has been written and re-written concerning treatment. Some one, in the long ago, had the temerity to announce that the three essential points were, after reducing the fractured clavicle, to keep the shoulder up, out, and back; and this seems ever since to have been taken as advice not to be improved upon. Regardless of the size, shape, or condition of the unfortunate sufferer, the treatment must be a big pad in the axilla, a bandage around the body and arm, and a sling, or something similar to it. Sometimes the hand of the side on which the fracture is found is carried across the breast and laid upon the shoulder of the opposite side, and a bandage carried around the arm and the body sufficiently tight to interfere with respiration, while the axillary pad shuts off free circulation in the arm.

Many times on seeing the patient a few days after he

has been nicely and scientifically bandaged, the surgeon is astonished to find that the bandage is entirely off, or so loose and out of shape that it fails to fulfill the expectations of the applier to keep the shoulder up, out, and back. Although so many cases occur, and are treated by so many eminent surgeons, few, after recovery, are exhibited as specimens of skill in the art of bone-setting. Luckily, as a rule, not many non-unions occur, and patients usually get well enough, after a month or two, to resume their vocations. But enough sequelæ are found to call for a more exact diagnosis, a more guarded prognosis, and a more careful treatment than is usually accorded a broken collar-bone.

When called to attend a fractured clavicle the surgeon should satisfy himself, as nearly as possible, without injuring the patient, of the exact point of fracture, and the possible, or probable, injury to neighboring vessels, nerves, and tissues. He should then, mostly by placing the parts in their natural position, restore the bone as nearly as he can to its former place. He should use his gumption in applying bandages with the comfort of his patient in view as much as the traditional keeping "up, out, and back" of the shoulder. It would add much to the knowledge of bandaging if the surgeon, in some cases, would have his arm dressed with his favorite bandage for fracture of the clavicle, and see how long he would enjoy, or even tolerate, its presence.

All bandages, when in proper position, should be securely sewed through, enough to insure their continuing to be worn until the next time the surgeon is to see them. The dressing should be removed and the arm and shoulder well bathed, for the patient's comfort, at least twice a week for two weeks, after which it may be changed less often.

If I have succeeded in calling attention to the fact that a broken clavicle should have more attention than is usually accorded it, I have accomplished the object of this short paper.

DISCUSSION

Dr. C. A. Kelsey: I am sure we are all aware of the unsatisfactory results, or at least the unsatisfactory condition, we find in fractures of this kind; and while my experience has been very limited, I have become satisfied that we can derive advantage from the use of the plaster-of-Paris cast, putting the patient

in a favorable position to reduce fracture, putting the cast on, and retaining it in position with adhesive straps. As I said, my experience is very limited, but I suggest this to you as a possible addition to our present mode of dressing.

Dr. F. A. Dunsmoor: When I was a student I was associated with Dr. Frank Hamilton, of New York, whose classical work on fractures and dislocations has brought him into highest prominence. At that time there was no one more successful in the treatments of deformities than Dr. L. A. Sayre, and between the two there was much argument as to treatment of fractures. Dr. Sayre used to treat these fractures by his adhesive-plaster method, drawing the arm back as far as possible by a wide adhesive plaster all the way around the breast, then pulling the elbow forward and putting it over the opposite shoulder, thus elevating the injured shoulder. Then he would take hold of the man by his fixed arm, and wheel him around to show what a perfect dressing he had.

I have put on that dressing many times, and held the fracture in perfect position, but the patient invariably came back to have the plaster loosened.

I remember one poetical expression the essayist used. He said the surgeon should use his "gumption" in applying the bandage. That is an expression we ought to appreciate. I am sure that everyone, in spite of what we do, will recover from fracture of the clavicle, with useful limbs, but will have some deformity at the point of the fracture. I can recall only three times in my life when it was necessary to perform an operation for the deformity incidental to pernicious union. I have had to wire the broken clavicle two or three times, but statistics show that the results from fracture of the clavicle are most satisfactory, irrespective of any special method of treatment.

Dr. A. E. Benjamin: I do not think we can adopt any better way than by putting our patient flat on his back. The best results I have ever obtained have been by following such a method. Few patients will endure that, but if it is an actress who wants a pretty neck in the future, I believe we should insist upon that course. If it is a man, we shall have hard work to keep him in bed, but if he wants a good result, I believe there is no better way than to relax the muscles by this method.

Dr. T. J. Catlin (Essayist): The first speaker to offer a criticism suggested that a plaster-of-Paris cast with adhesive straps would be a good method. It might be in some cases. The object of the paper, in the first place, was simply to call attention to the fact that too little attention is given to the treatment of fractures of the clavicle. Nearly every doctor has occasion to treat fractured clavicle, and usually he has more trouble to keep the bandage on than in any other fracture, therefore I thought to call attention to it. I am glad some of the speakers have seen fit to criticise, and to suggest different modes of treatment.

Dr. Little wanted to know what treatment I would suggest. I do not know any treatment I could suggest, other than what has been suggested, or is found in the books. The method of

treating a fractured patella by wire sutures might be used in fractured clavicle where the fracture is superficially located. Dr. Benjamin thought it would be a good plan to put the patient to bed, but it is almost impossible to keep a patient in bed two or three weeks with fractured clavicle. If you could keep a patient in bed I presume the results would be better. I have never had one of that kind.

FRACTURES OF THE PATELLA, WITH SPECIAL REFERENCE TO THEIR TREATMENT BY SUTURE.

WALTER COURTNEY, M. D.
Brainerd

Fractures of the patella are rather rare in comparison with fractures of the other bones of the human body that frequently undergo this form of injury. Their occurrence is frequent enough, however, to justify discussion of the subject, particularly when we recall that under the ordinary forms of treatment results are too often unsatisfactory to both surgeon and patient.

Before regularly undertaking the subject of treatment, it may be of advantage briefly to consider the etiology, pathology, symptoms, and prognosis of these fractures.

The fracturing force may be either direct or indirect; a blow or a fall upon the patella may be a direct cause, while a sudden and severe contraction of the quadriceps femoris, with or without opposed flexion of the knee, may fracture by indirect force. My own observation, while not very extensive, tends strongly to support the opinion of those who hold that involuntary and powerful contraction of the quadriceps femoris is responsible for a large number of these fractures, particularly those of a transverse character.

Pathologically considered, fractures due to indirect violence are usually transverse, or nearly so, while those resulting from direct force are often comminuted, vertical, or oblique.

In transverse fractures the fragments are usually separated or displaced to a greater or less degree, depending

upon how much the fibroperiosteal coverings of the bone, as well as the lateral expansions of the tendon, are torn. When these are fully ruptured, the retraction of the quadriceps and the filling of the joint with blood and exudate are largely responsible for whatever degree of separation there may exist. Mere separation of the fragments is not the only form of displacement present: we sometimes see the upper one tilted or angularly displaced. Recently in operating, by arthrotomy, I found the fractured edge of, the upper fragment facing anteriorly towards the skin instead of downwards in the direction of the foot. The smaller fragment, which is frequently the lower one, will be found in quite a number of cases more or less comminuted when opened to view. The fibroperiosteal covering is not always torn on the same line with a transverse fracture; consequently, when operation by arthrotomy is done, we often find it hanging as a distinct fringe between the edges of the fragments. Macewen first called attention to this intervening fibroperiosteal tisue, and the possibility of its causing so many cases to terminate in fibrous union only. The idea has since then found acceptance by many others.

Vertical fractures usually show little or no displacement. The same is true of the oblique and comminuted forms due to direct violence.

The laceration of periosteum and capsule, together with the fracture of the bone, results, usually, in extensive hemorrhage, which distends and fills the synovial sac with blood.

The symptomatology is simple and plain; subjectively, the patient is at once rendered unable to walk, unless it be, possibly, in a backward direction; objectively, the knee is found swollen, and, if the fracture is transverse, a corresponding depression or soft spot may be felt between the fragments. In vertical or comminuted fractures, there will be crepitus on making surrounding pressure of the bone.

The prognosis, in this brief paper, will be confined mainly to the subject of restoration of the function of the joint. In nearly all cases treated by non-operative methods, union of the patellar fragments will be fibrous, rarely osseous. Where the fragments are sutured, bony union is a frequent result, but not invariably so. With fibrous union between more or less widely separated frag-

ments, the outlook is not good for full restoration of function, though a very useful limb may be secured. With prompt bony, or even close fibrous, union, careful passive movements may be begun quite early, and perfect function of the joint secured. With poor fibrous union, extension of the leg may be impossible or very incomplete. It is very important to secure normal flexion if possible, otherwise accidental flexion, beyond what is customary in the case, may result in refracture.

It may be of interest briefly to relate a most embarrassing experience that befell me a few years ago. I treated a man, of somewhere near middle life, for a fracture of the lower end of the femur, just above the condyles; union was slow, and passive motion impossible until complete union had taken place. Attempts to make passive movement of the knee-joint resulted in failure, until an anesthetic was administered; even then flexion was difficult; a little more than usual force was applied, and the startling result was a fracture of the patella, which could be plainly heard anywhere in the room. Extreme flexion was made, a wet dressing and posterior splint applied with the leg extended, and a few days later an arthrotomy was done, the joint emptied of blood clots, and the fragments sutured. At this time it was found that the quadriceps tendon had become fixed by the callus uniting the fragments of the fractured femur.

I will not attempt to discuss the ordinary forms of non-operative treatment, as you are all more or less familiar with them, and the results obtained from their employment. That fully a hundred different methods have been devised and practiced, speaks volumes against the plan's insuring success in a very large proportion of cases. That some of the methods have more value than others is, of course, true. That they are applicable, and may be expected to prove effectual in selected cases, is equally true. Cases of simple fracture without displacement can and should be treated by some one of the non-operative methods, the selection being governed by the judgment and experience of the attending surgeon. Vertical fractures; fractures comminuted by direct violence and with untorn fibroperiosteal covering and capsule; oblique fractures without displacement; and such transverse fractures as have little or no separation of fragments, should be treated by some non-operative method.

Massage of the quadriceps muscles should be made as frequently as possible, and passive motion of the joint begun as soon as the surgeon considers it safe.

In the latest edition (1899) of Lewis A. Stimson's valuable work, "Fractures and Dislocations," he opens the subject of treatment of fractures of the patella in the following way: "The obstacles to apposition of the fragments and their close reunion are the pull of the quadriceps, the distention of the joint, and the interposition of the fibroperiosteal fringe or aponeurotic shreds. Later causes of limitation of function are adhesions and retraction of the soft parts of the joint, hypertrophy of the fragments, and possibly degeneration of the quadriceps." Now, a full consideration of these conditions, present or future, in a given case, together with a patient's future welfare, should, it seems to me, materially assist the surgeon in deciding what plan of treatment, operative or non-operative, should be followed.

It would be very interesting indeed to go into a detailed history of the operative treatment of fractures of the patella, but this will not be attempted here. In pre-antiseptic days, the attempts were often disastrous to either limb or life. Even after Lord Lister revived the practice under antiseptic conditions, many who followed him were completely discouraged by their results. The introduction of asepsis has done much to dispel the common belief that it was extremely dangerous to open the knee-joint, but, in a good many minds, a lurking fear still exists. That there is ground for fear, unless perfect asepsis is practiced, none will deny.

When the surgeon can secure perfect asepsis in every detail of operation, and among his assistants, then it is unreasonable to longer fear arthrotomy of the knee-joint, when circumstances clearly indicate that by its means the best results are to be obtained. There are still some prominent surgeons opposed to operative treatment. These men would not hesitate to attack dangerous intra-abdominal injuries or disease, and I can only understand their ultraconservatism by reasoning that they look upon a fractured patella as not dangerous to life, and, at the worst, can only impair the individual's usefulness, while at the same time their attitude may act to deter other surgeons, without the requisite experience and facilities,

from a serious undertaking. In the latter sentiment I think we can all concur.

I would advise operation only when the surgeon has every confidence in his own and his assistants' mastery of a perfectly aseptic technique. Under such conditions I would advise operation always in cases of compound fracture with displacement of the fragments, and in transverse fractures with marked separation and probable torn capsule, and fibroperiosteal tissue. I always carefully explain to the patient the possible risk and the probable gain in comparison with non-operative treatment, and really let him make the choice. When the surgeon can command all the necessary requirements for operation, the risk is, I believe, almost nil. Stimson stated (Feb., 1898): "I have used operative methods in more than seventy cases without accident." Dr. Chas. A. Powers, of Denver, writing under the title, "The Question of Operative Interference in Recent Simple Fractures of the Patella" (Annals of Surgery, July, 1898), gives the opinion of ninety surgeons (American and foreign) on the subject. Seventeen were opposed to operation; nine urge operation in all cases, while forty-one recommend operation in selected cases. In a total of 711 operation cases collected by Dr. Powers, there were three deaths, two with complete ankylosis, and twenty-eight with "marked stiffness and disability." In the remaining 671 cases, or in 94 per cent, the result was satisfactory. This is an excellent showing, particularly when one remembers the great number of surgeons, with their various methods and capabilities, engaged.

Personally I have operated on only five cases. The results have all been very satisfactory. I take pleasure in presenting three of these cases for your direct and personal examination:

CASE 1.—Switchman; transverse fracture of right patella, by indirect violence, May 7, 1900; operation by arthrotomy; detached fragment ¾ in. long by ⅜ in. wide, thickness of patella, removed; remaining portions of fragments sutured with chromicized catgut; complete bony union within two months. Present condition, perfect bony union and complete function of the joint.

CASE 2.—Brakeman; transverse fracture of right patella by indirect violence, Feb. 16, 1902; operation by arthrotomy; bony fragments sutured with one silver-wire

and two chromicized catgut sutures; bony union in six weeks. Present condition, firm bony union of fragments and complete function of the knee-joint.

CASE 3.—Locomotive engineer; transverse fracture of right patella by indirect violence, April 5, 1902; operation by arthrotomy; bony fragments joined by one silver-wire suture, and fibroperiosteal covering united with five interrupted sutures of chromicized catgut; bony union in six weeks. Present condition (ten weeks after injury), firm bony union of fragments; patient can flex leg on thigh to a right angle, and can walk up or down stairs without the aid of cane or crutches.

As regards the mode of operating: My experience has been confined entirely to the arthrotomy method. I look upon Malgaigne's hooks and subcutaneous wiring or suturing as dangerous and illogical in comparison. The joint is as much exposed to infection as when it is fully opened by incision, possibly more, and there is no opportunity of thoroughly clearing it of clots or removing the interposing aponeurotic shreds between the fragments, both very valuable and important considerations.

In a recent case, I am in the habit of applying weak antiseptic wet dressings for a few days before operating. A double purpose is served thereby: the skin is better prepared, and there is, by this time, no need to fear further hemorrhage, and the wound can be closed without drainage. Then too, the joint, having become accustomed in some measure to its abnormal condition, is more tolerant of interference. After every care has been taken thoroughly to prepare, not only the leg, but the patient in every way, for operation, an anesthetic having been duly administered, we come to the choice of incision. This may be either vertical or transverse. The latter gives, readily, more room for attention to the torn capsule, if such is present, and should be made from half to one inch to one side of the line of the fracture in the patella. This is done in order to lessen the possibility of compounding in the event of a refracture. The joint having been opened, the fragments are retracted outwardly, their surfaces freed from blood-clots, and while they are held apart, the synovial sac is thoroughly irrigated and cleansed with warm sterile normal salt solution. They are now put in apposition, and careful attention is given to the removal of detached pieces

of bone, and any fibroperiosteal fringe that may intervene.

Whether metallic or animal sutures are to be employed in joining together the fragments and their immediate or fibroperiosteal coverings, is largely a matter of choice. Many surgeons seem to prefer silver wire as a suture; some depend altogether on chromicized catgut; while others use both in combination. Sometimes the fragments can be better brought together, and held in close apposition when at least one wire suture is used. I have always used at least one wire suture, except in one case, where catgut alone was used. I have had some fear that the sharp edge of the drill holes might act to divide catgut sutures long before they might otherwise give way. When the fractured edges are very irregular, it may be necessary to cut away small projecting portions to allow close apposition. It is well to set the drill point back at least half an inch when applying it to the external surface, and have it emerge on the fractured edge, above the cartilaginous or inner surface. Thus, should a wire suture be used and have to be removed later, such could be done without involving the joint. The bone being composed so largely of cancellous tissue, will not permit of rough force in using the drill or in applying wire sutures.

Careful search should be made on both sides for rents in the capsule; if found, they should be closed with ten-day catgut. Even though wire sutures have been passed through the bony fragments, the torn aponeurotic covering should be carefully and completely sutured with fourteen-day catgut. Some surgeons depend on the latter suturing alone to hold the fragments until union takes place. I fancy these are the arthrotomy cases that sometimes fail of bony union. When the fragments are too badly comminuted and the fibroperiosteal covering too much lacerated to permit sutures to be applied, they can be brought in apposition by passing a suture of silk or chromicized catgut through the quadriceps tendon above and the patellar tendon below. I am in the habit of suturing the subcutaneous tissues with small plain catgut so as to cover and protect the deeper and more permanent stitches, and finally close the skin with shallow silk or horse-hair sutures. The wound can usually be closed without drainage. After putting on a sterile dressing, a

posterior splint should be applied with the leg fully extended. When put to bed the foot should be elevated somewhat to completely relax the quadriceps muscles. The superficial sutures can be removed in eight to ten days. I have kept my patients in bed four to five weeks. I think three to four weeks would be long enough. Passive motion in a mild way may be begun about this time.

I have tried to demonstrate in this article, and by the patients presented for your direct inspection, the value of treating these fractures in selected cases by opening the joint and using the proper sutures to meet the indications. I am convinced this method of treatment is practically without danger, when followed under all the conditions given heretofore, and will result in perfect, or almost perfect, restoration of the anatomy and functions of the patella and the joint, the complete usefulness of the leg, and the ability of the patient to fully resume his former occupation within the short period of two and one-half to three months.

The corollary I am inclined to submit is, Where a practitioner cannot meet all the conditions necessary to the perfect treatment of a fractured patella, he will best serve his patient's interests and his own reputation by transferring the case to a thoroughly competent surgeon, and to no other.

DISCUSSION

Dr. F. A. Dunsmoor: I think this is the kind of surgery we like to see. It happens to have one thing in common with the last fracture treated upon, the fracture of the clavicle. Even if it does not get union, the person has use of the part. I recall a case of one man, a horse-jockey, whom I was unfortunate enough to employ to drive a racehorse. He came to me with an old fracture of the patella, and he had a ligament four inches between the edges of the fracture. This man managed to run a racing-sulkey, and to get about in manual work. There is a member of the association, Dr. Evans, who was kicked by a horse, and his own ingenuity suggested one of the methods of treatment which might be used by those who do not wish to resort to the surgical operation. He used a posterior splint, and cutting two crescent-shaped pieces out of sole-leather, just large enough to fit around the upper and lower margins of the patella, he bound them around the limb, and on each were put ordinary shoe-string hooks, to which were attached rubber bands, approximating the leather splints, which, in turn, controlled the position of the patella fragments. He got a very nice result.

Dr. Courtney has brought out one or two things. When you use

either of the types of operation that were described here, you are surprised at the amount of debris that is found in the ordinary fracture of the patella, and, as the doctor has said, a blood-clot forms in the joint cavity, and the aponeurosis is driven down between the bone fragments. Therefore, I do not see how it would be possible to get a bony union without operation.

I tried the apparatus devised by Dr. Evans in one of the worst cases I ever saw, but found the leather would override. I, therefore, operated after a week's trial. On opening down to the fracture I found the lower half was simply a bag of little fragments. There was no piece in the lower half of the patella larger than the end of my little finger, and there were certainly twenty fragments in the lower half. I could not get any suture-hold through it, but I used chromocized catgut, encircling the entire wounded part; and then the aponeurosis was stitched together with the gut over all, and no silver was used. I made the incision at right angles to the one the doctor makes, which gives me an opportunity to pass the needle below the patella and also above the upper fragments, and to carry the suture of chromocized gut around to take in all fragments, knowing that it will unite perfectly. It is not necessary to have silver wire uniting the bone. I envelop the entire limb in plaster-of-Paris, and I do not take it down for thirty days. It does not make any difference how securely a man puts on the dressing, if he lets any sepsis get into the joint before it is sewed up, he is up against a bad thing. Witness how many are afflicted now with stiff knee-jonits where there is no fracture whatever. After fracture of the patella, if the patient can make any flexure whatever, he will gradually get good knee-motion. I recall a case of a man who could not bend his knee at the time of the removal of dressings, but at the end of a year he could sit upon his heels all right.

Dr. J. T. Rogers: I think the doctor is to be congratulated upon the very satisfactory results shown in these cases. I believe, with him, that almost all cases of fracture of the patella should be operated upon.

Wiring of the patella is an operation which, up to three years ago, I did with impunity, and I have been fortunate in getting good results; but in reading the "Year-Book of Surgery" some three years ago, I ran across an article by an English surgeon (Barker), in which he describes an operation for simple transverse fracture of the patella, which I have done in four cases, and find it so superior to the original wiring (in selected cases) that I shall continue to do it. The operation consists in plunging a knife through the center of the ligamentum patellæ close to the bone, making an incision the width of the knife blade. A blunt, long carrier is then passed through the point underneath both fragments and a small incision is made above in the center of the upper fragment. A large-sized silver wire is now threaded through the eye of the carrier and pulled out of the original incision, and the carrier, unthreaded, is passed over the lower fragment and over the upper fragment out of the upper incision. The carrier is then threaded

with the wire, pulling it down and out of the original incision. Thus we have the wire entirely encircling both fragments of bone as nearly in the center as possible. The fragments are now thoroughly rubbed together until the sensation of rubbing two lumps of sugar together is felt. We then know that there is no intervening substance between the fragments, and by keeping firm traction on the two ends of wire we can hold the fragments in apposition until the wire is twisted and cut off. The twisted ends are then covered by introducing one stitch. The incision above is also sutured, one stitch usually sufficing. If deemed necessary the joint can be irrigated through this incision, and much of the débris washed out, although it does not seem to me to be necessary to do this in many cases.

The patients upon whom I have done this operation have been able to walk in a week, and have left the hospital in from ten days to two weeks. Passive motion should be begun in two or three days after operation and continued until the joint movement is perfect. It is said that these patients are able to play football in three weeks after operation.

Dr. Courtney: Did you fasten the wire sutures outside or under the skin?

Dr. Rogers: I fastened them under the skin. In one case six months after operation the patient injured his knee and as a result there was a little irritation and some suppuration over the twisted wire just below the patella. I made a small incision, snipped the wire and took it out, and the patient had no further trouble. While with this operation we are working in the dark to a certain extent, clinically my results have been so good that I must continue to use it. In the open operation as performed by Dr. Courtney, it requires considerable length of time and a great deal of manipulation of the joint structures, and adds materially to the length of time required for a cure. In some cases, of course, it will be necessary to do the open operation. As I have said before, the cases must be selected for the Barker operation.

I shall hope to be able to make a further report on the results of this operation at some future meeting.

Dr. J. H. Dunn: I think one can agree with most of the points in this paper, but I also think we can get good results in many cases without operation. In others operation may be desirable, and yet in others operation is absolutely necessary if we expect to get a very good result. I have recently seen a case of fracture of the patella in which there was almost no separation of the fragments. I would not have believed that such a case was possible, if I had not seen it. It seems to me foolhardy to operate upon so simple a case as this where there is almost no tendency to displacement. A very simple apparatus will secure good apposition and fairly prompt union. In the average case the chief advantage of operation is the great saving of time. I have had cases wired. I recall particularly a compound case in which the patient was able to get around without splints after four weeks, and

was able to dance four months after the injury. In this class of cases the main objection to the non-operative treatment is the very long confinement necessary to secure a good result. In the third class of cases, including compound fractures and those with great displacement, effusion, or the intervening of pieces of fascia between the fragments, operation is necessary to a good result. In the simple cases, then, operation is not absolutely necessary. I can think of at least eight cases in which the results were good without operation, and I believe it is all nonsense to say you cannot get in many of these cases bony union without wiring the fragments; but, of course, it takes a long time. It may take five or six months before the patients are safe. In two cases I have known the bone had been refractured.

Leaving this question of time out of the question, I think good results may be obtained in perhaps three-fourths of the cases of fracture of the patella; in the other fourth I believe it is very desirable to wire the bones. Against the loss of time in the milder cases we must place the slight danger of operation. Certainly the danger may be reduced to a minimum under careful operating, but it cannot be absolutely excluded, I am sure. One of my cases frightened me very much. Despite the most rigid precautions so that nothing that was not boiled came in contact with the knee, it suppurated. The man was suffering from stricture and urethral discharge, and I have every reason to believe the infection was in the body and did not come from the operation. I opened the knee promptly, and drained it, and fortunately succeeded in getting a perfectly good knee; but you cannot count on that every time. This is the only thing that can be said against the routine wiring of this fracture; hence I would be somewhat conservative and, as before stated, I divide these cases into three classes: First, the simpler ones, in which I would not advise wiring; second, the medium-severe cases, in which I would advise it, but not insist upon it, explaining the situation to the patient and letting him decide, thus throwing the responsibility for the slight risks and great advantages entirely upon him; and, third, the severe cases in which I would insist upon operation.

Dr. Walter Courtney (Essayist): I feel very much gratified at the amount of discussion by able men that I have raised by this paper.

Answering Dr. Dunsmoor who spoke of a patient who, at four months, had comparatively little motion of the joint and who felt considerably discouraged at the result, I wish to say that the last patient I presented to you here, who had a considerable portion of the patella removed, had comparatively little motion at the time he went out from the hospital, and I was somewhat in doubt about the amount of motion that would be secured in the joint, but, as you have already seen, the restoration of the function of the joint was complete. You need not feel discouraged when you have failed to get perfect motion within a few weeks after operating on a case.

In answer to Dr. Rogers, I would say there is at least one thing about which I must differ with him. I think he misunderstood me when he said he agreed with me and that he did not believe in wiring a case of fractured patella. I said I did not think that all cases should be wired. I think it is usually the best practice in cases that have marked displacement with marked evidence of internal injury of the joint and probably extensive laceration of the capsule, to open the joint and wire the fragments. Then you can form a definite idea of what is to be done. In some cases I have not been able to tell how much comminution there was. There may be marked comminution, but still the fragments may be held closely together. He spoke of rubbing the fragments together. You might rub the fragments all day, and if the aponeurotic covering intervened, you could get but little or no crepitation.

As to wiring around the fragments: I have had no personal experience with this treatment. The method outlined in the paper appeals to me as being more practical. It seems to me there would be strong objections to passing a wire into the joint, for it would bring the wire into direct contact with the synovial sac, and would keep up irritation in that way. Some of the cases that are slow in getting well, after the wiring, are probably due to an extra amount of irritation on the inside surface of the patella from the wire. In regard to the method of wiring the doctor speaks of: if you do not remove the aponeurotic shreds, and repair the torn capsule, you will have no opportunity of doing anything beyond bringing the fragments of the bone together, which in a large number of cases is insufficient. If you go so far as to open the joint at both ends of the patella, as the doctor has described, I can see no objection to going farther, and thoroughly opening the joint and giving an opportunity to do perfect work. The doctor spoke about patients getting around early. Probably I am too conservative. I do not care about my patients losing two or three weeks, if I can get a more perfect result because of the delay.

In answer to Dr. Dunn's discussion, I will say that I believe there is a large percentage of cases that can do without wiring. On the other hand, if we consider the subject all the way around, I do not know that the percentage would be so large. I think fractures of the patella ought to be treated by the older and more conservative plans whenever it is deemed wise and advisable. I do not recommend suturing of the patella in all cases, but only in certain selected cases. I have treated a number by the old conservative methods myself, but there is the objection that Dr. Dunn spoke of, namely, the great length of time it takes before you or your patient has the assurance that the leg is in condition to permit the patient to use it freely, and engage in his usual occupation. I can recall one case treated by the older and more conservative methods, where it was nearly a year before I could persuade the patient that he could attend to his regular work.

SQUINT AND OTHER MUSCULAR ANOMALIES

EDWARD J. BROWN, M. D.
Minneapolis

At the 1898 meeting of this society at St. Paul, in a paper on squint, I reported the somewhat brilliant result of a partial tenotomy of a superior rectus muscle in the cure of a hyperphoria of 2° and esophoria of 23°, the immediate result being vertical orthophoria and esophoria of 5°. At the end of two weeks there was an esophoria of 2.5° with sursumduction, right and left, of 2.5°, and abduction of 1°. Unfortunately, the family was very poor and greatly afflicted, in consequence of which subsequent treatment was neglected, with the result that the girl was soon squinting nearly as badly as ever.

In presenting the supplementary report, I wish to use it as a text to enforce the fact that squint can seldom be cured merely by an operation. One of the best men in the West remarked, not long ago, that he seldom operated on a case of squint till the patient had been under his treatment and care for three years. Family physicians and parents should be impressed with the fact that a squinting child should be placed under the care of a competent ophthalmologist at the earliest possible date after the squint has appeared. A child three months old who squints should be treated, at least to the extent of having its good eye bandaged one or more times daily, in order that the vision of the squinting eye may be properly developed. Neglect to do this will probably lead to defective development and vision of the squinting eye, and to false or excentric fixation, which may render a later cure difficult, if not impossible.

The exact refractive error may be determined even in very young children by means of retinoscopy, and appropriate glasses should be ordered in case of children three years old, or, in exceptional cases, even younger. It should be distinctly understood that inability to determine the refractive error in such cases by objective means, renders the physician or oculist incompetent to treat them. A vast amount of patience is needed both by physician and parents to save these little ones the normal use of their visual faculty in the way of binocular single vision, but the effort is well worth while. The bandage, suitable

correcting glasses, atropia and the stereoscope will tide such children over the most dangerous period, allowing time for the development of the necessary impulse toward normal vision. Many will be cured, and others will later require exercise of special muscles to develop their innervation, while some few will require operative interference. As a good illustration of what may be done in older subjects, I will report the following:

Mrs. W——, aged 52, came to me March 22, 1902, complaining of pain in the back of the head, aggravated by any use of the eyes. She was in good general health. Following a season of overwork, and without other obvious cause, she found herself the subject of diplopia, which lasted for two years. During the succeeding four years she had suffered greatly from pain in the back of the head. She had learned to get single vision by turning the head to the right or left or down. With the head straight there was crossed diplopia, the left image (that of the right eye) being fainter and lower. The phorometer indicated right hyperphoria, 9°, and exophoria, 3°. Vision was 20-xx in each eye, and decidedly improved by R-.25 cyl., axis 45° nasal. L-.25 cyl., axis horizontal. There was a considerable area of old choroidoretinitis in the outer periphery of the right eye. Rotations were, upward 28° and 30°; downward, 42° and 45°; torsion of right eye, 6° out; of left eye, zero. These findings indicated a probable paresis of the right superior oblique. After a few days' exercises with prisms, she was able to fuse images with 2° prismatic correction of vertical error. For the past two weeks she has been wearing, with great comfort, for distance, her quarter diopter concave cylinders, with which she has 1½° right hyperphoria.

While I have no word of criticism for properly performed operations on the muscles, I am convinced that most of such operations are done with too little consideration; that many of them might be entirely avoided with great advantage to the patient; and that altogether too many of them are to be considered as cases of malpractice.

Discussion.

Dr. C. J. Spratt: I have been much interested in the valuable paper by Dr. Brown, but I cannot quite agree with all of his conclusions. I agree with him that many cases of squint can be corrected without operation, but the majority must be

operated upon to correct the cosmetic defect. I believe a word at this time may be uttered which will place the majority of those within the sound of my voice right, if they will heed the warning. It is this: A grievous error is committed by the family physician, and rank injustice done to the oculist, when he informs the parent or patient that the operation upon these cases is so simple that it can be performed in a moment. On the contrary, it is a subject which requires wide experience and mature judgment to obtain satisfactory results. A proportion of these cases can be corrected without operation, and for this reason as soon as the child begins to squint it should be placed in competent hands and an effort made to correct the disfigurement by the correction of the refractive error. Large statistics among those of the lower walks of life show that at least 20 per cent can be corrected in this way, and it must be remembered that there are among this class numbers who neither possess the intelligence nor, may I say, interest in their offspring to follow out and keep the patient a year or two under treatment, but expect an immediate correction of the deformity. In the higher walks of life the results are much greater, reaching 30 per cent of corrections by the use of glasses and of course no operative procedure is then called for. In the 70 per cent remaining they require operation. The class of cases in which the most satisfactory results are obtained without operation are hypermetropic individuals, and I am convinced that treatment of squint, if the patient is hypermetropic, should be commenced if the child shows squint as early as three years. It is true at times it develops later in life. Whenever it does develop, then the correction should be undertaken by means of glasses. If an error of refraction exists, disappointment may be our lot; often, on the contrary, pleasure and satisfaction will greet us. Of course you all understand if an eye is emmetropic, and strabismus exists, no result can be obtained by glasses, but about 75 per cent of cases of concomitant squint do suffer from errors of refraction.

Occasionally a low degree of squint in a child will be corrected by nature without the intervention of the surgeon. I have met quite a number of people who when young showed a low degree of concomitant strabismus, which gradually disappeared as time passed until the deformity has corrected itself. Why this occurred I do not know. Is a parent doing right—is it justice to the child not to correct the deformity? I think not. Every child, if old enough to realize, and every man and woman who is afflicted with this deformity is self-conscious. They are always at a disadvantage, both socially and financially. If a young woman is cross-eyed but otherwise engaging and comely, it is against her when it comes to the marriage question. A man who has this defect is always at a disadvantage, except it be at manual labor. How many times have any of you ever seen a cross-eyed man or woman occupying a responsible position? There exists in the minds of the public a prejudice against these unfortunates. It should not be so, but it is so, and they should be relieved of the deformity.

The result that Dr. Brown has mentioned in his paper, I do not question, but I am frank to say that I believe they were

not obtained by the partial tenotomy, *per se,* but what results were obtained were psychic. I think the trouble in these cases of the doctor is not in the muscle, but is in the nerve-cell. A muscle never gives out first in these cases, but the nerve-cells supplying the fibers of a given muscle become exhausted, and so cease to send out impulses of sufficient intensity to cause contraction of the muscle fibers. It seems to me herein lies the fallacy of partial tenotomies. I am inclined to think, eliminating the psychic influence, that the results of partial tenotomy are a delusion.

Dr. J. H. James: Some years ago I had the privilege of seeing Dr. Stevens do a partial tenotomy. I became quite an enthusiast, but I have given up partial tenotomy entirely. I make a tenotomy, but I make it complete. I have seen a deviation of 15 to 20 degrees the other way after operation, but the result has been that the eye has always come back. I had the pleasure last year of listening to some papers and discussions by eminent men in the American Medical Association at St. Paul, and I went away from that meeting wondering if I ever dared to touch an eye muscle again. Dr. Spratt has spoken of the trouble in these cases of deviation as due to the nerve-cell. Some years ago an observant physician said to me, "Always look out for a cross-eyed man." I have learned to get my fee at the time of operation from a man who has cross-eyes. I don't believe you can trust him. There is something about it that affects the moral nature of the man, and this fault undoubtedly lies in the nerve-cells.

Dr. E. J. Brown (Essayist): I do not want to carry the discussion much farther. I have no quarrel with my friend Dr. Spratt about partial tenotomy. I think we should not use the term "partial," but rather "graduated" tenotomy. I think my friend Dr. Stevens, of New York, would do fewer tenotomies of low degree if he were to do his refraction work with a cycloplegic as I do. I am sure I have done good to some of my patients by partial tenotomy, but I am equally confident that I have done harm in some cases, for which I am very sorry.

THE FALLACY OF DRAINAGE IN DIFFUSE SEPTIC PERITONITIS

DONALD B. PRITCHARD, M. D.
Winona

I am sure there are few surgeons present who have not had occasion to lament their ability to save from death only a very small proportion of their patients suffering from diffuse septic peritonitis. Upon opening the abdomen and finding infection widespread, with no adhesions walling off its further progress, particularly when the small intestines were much involved, we have

given a very bad, if not an absolutely black, prognosis. Unhappily, we have been seldom disappointed. Such being the case, I feel that I need not apologize for bringing the matter before you, as I have some views upon the question not altogether in accord with common practice; and, whether right or wrong, I hope a discussion may be provoked that will be of value to myself, as well as others.

The tendency on the part of surgeons is to drain less and less in intraperitoneal operations. It is but a few years ago, that we would have been terror-stricken had we seen the abdomen closed after the removal of pus-tubes in which pus was spilled all over the pelvis, while now we close it without any hesitation. My own somewhat limited experience leads me to regard the peritoneum as capable of taking care of a great deal of infection. Cases that used to do badly with drainage, will now make a smooth recovery without it. In a great many of these cases, particularly in pelvic operations, the pus is sterile, but when it is not, a large amount of it will be disposed of by the peritoneum, if it is given a proper chance. By a rapidly executed operation, with thorough removal of the foci of infection, an aseptic technic, gentle handling of the abdominal contents, proper control of hemorrhage, irrigation of the abdominal cavity with plenty of normal salt solution, and then closing the abdominal cavity without drainage when full of the water, I believe we will get much better results than when drainage is used.

If we leave a drain in the belly, it is a menace to the patient, because there is left an open way for further infection, and shock is rendered greater, not to mention the increased chance of post-operative hernia. Drainage in diffuse septic peritonitis is a delusion and a snare, because it does not drain. You can block off a limited area with gauze, and thus prevent the spread of infection, but the actual drainage may be hampered rather than facilitated by the presence of a foreign body. Take a case of very extensive peritonitis, put in a drain, and what happens? The peritoneum at once resents the insult by surrounding it with folds of omentum and coils of bowel, thus effectually preventing the escape of any-

thing beyond the cavity occupied by your drain. The bowels become paralyzed, and the immense lymph-sack, which, if left to itself, or aided by intelligent effort, might have taken care of the infection, ceases to perform its functions, and the patient dies. If, on the other hand, after removing the focus of infection, the abdomen is thoroughly washed with a hot salt solution, the water being carried to every nook and cranny of the abdominal cavity until it returns clear, you quickly stimulate your patient and overcome shock, thus placing him in the best possible position to withstand infection, wash away much of the infectious matter, and then, by closing the abdomen when full of bland fluid, you give the peritoneum what chance there is to take care of the poison, it is wonderful what it can accomplish. Further, it floats out the coils of the intestines, and in that way prevents kinking, which might prove fatal. We do not fully realize what the peritoneum is capable of doing, and have been afraid to test it. It is the best friend the abdominal surgeon has, and it has failed us simply because we would not trust it. We have been in the habit of interfering with it in its work, and then blaming it because it rebelled. A good many cases of this character have recovered after drainage, but it was probably in spite of rather than because of it.

We operate for the removal of a gall-stone from the common duct, and put in a drainage-tube and gauze to hasten the formation of adhesions which will cut off the channel from the general peritoneal cavity. This is proper. Then we will operate upon a case of extensive peritonitis and put in one or more drains, commonly of gauze, for the purpose of draining the large area involved.

Now, this may be good surgical logic, but it seems to me to be lacking in that quality known as good horse-sense. In order to drain such a case, it would be necessary to convert the unfortunate patient's abdomen into a receptacle for more gauze than bowels.

I have only two cases to report to you in which I have carried out the above plan, and confess that in the first the courage of my convictions almost failed me, but being so satisfied that she would die by any other

method of treatment of which I had any knowledge, I felt she could suffer no harm. It is to be regretted very much that no bacteriological examination was made in either case to determine the character of the infection. In future cases I hope to have this done, as the prognosis depends very much on the species of infection, as well as the resistance of the patient. The two cases were of opposite sexes. One was a thin, delicate girl; the other a robust young man, used to an outdoor life and without any bad habits.

CASE I.—On the evening of July 6, 1901, I saw Miss K——, aged 19, in consultation with Dr. Halloran of Chatfield, Minnesota. She was a tall, thin young woman who gave no history bearing upon her present sickness. She had been taken ill about fifty-two hours previously. At first her complaint was chiefly of pain in the right lower abdomen, but very soon it became more general. Her facial expression was that of one in great bodily and mental distress. Her pulse was over 140; respirations hurried; and temperature 104.5°. Vomiting was persistent, and had been so from the onset of the disease. The abdomen was greatly distended with gas, so much so that the skin looked stretched. There was great pain and tenderness over the whole abdomen.

She was suffering from acute appendicitis with more or less general peritonitis. It was very much of a question whether it would be better to operate or let her die without surgical interference, because it looked as if she would not recover in any event; but as I dislike to allow patients, unless already moribund, to die of appendicitis, without at least making an effort in their behalf, we proceeded to operate. Fifty-five hours after the onset of the acute symptoms, with the assistance of Drs. Halloran and H. F. McGaughey, the abdomen was opened. A large quantity of seropurulent material escaped. The appendix was gangrenous, and no attempt at walling it off by adhesions had been made. Large amounts of this purulent serum welled up from every direction. The bowels were red and angry where they were brought into view, and were so distended with gas that it was very difficult to keep them out of the way when oper-

ating. In fact, all the peritoneal surfaces that we could see were infected, without any limiting adhesions anywhere. The appendix was removed; and the abdomen was thoroughly washed with gallons of hot normal salt solution and closed without drainage, leaving it as full as we could of the salt solution. I saw her about eight hours later, and the clinical picture had greatly changed. Her expression was good. The tympanites had largely disappeared, and her further progress was as prompt and free from discomfort as after an operation in an interval case.

CASE 2.—T. W.——, male, aged 22, was seen with Dr. Lichtenstein at noon on May 6, 1902. The doctor had been called to see him eighteen hours previously, when he was vomiting freely. On May 3d he felt some pain in the belly but remained at work. May 4th he was up and out, but at noon on the 5th he decided to stay at home. When the doctor saw him he was not suffering much pain. During the night he was called to see the patient again. The vomiting had ceased, but the abdominal pain was very severe. His pulse and temperature were both elevated, and the abdomen had become hard. When I saw him he had a bad expression, and the abdominal muscles were extremely tense. There was some tympanites. His temperature was 101.5°; pulse 110, and rather hard and wiry in character. He was very tender on pressure over the lower abdomen, the left side being quite as tender, or nearly as much so, as the right. Acute appendicitis being diagnosed, he was moved to the Winona General Hospital, and at 4:00 p. m. with the assistance of Dr. Keyes, I operated upon him. On opening the abdomen, a good deal of purulent serum escaped. The appendix was found very much thickened with a large perforation at the base. Near the tip there was another necrotic area, which had not yet sloughed. The appendix was fully as large as a man's thumb. There were no adhesions about it, and upon examination we found that all of the peritoneal surfaces below the umbilicus were bathed in pus, and the infection extended up the ascending colon. About a teaspoonful of fecal matter which had escaped through the

perforation, was removed from the belly. Both the large and small intestines were coated with a number of patches of lymph. Some of it was removed, but it was thought best to desist, as the surfaces left were raw and more harm than good might be done by the procedure. The appendix was excised, as well as a piece of omentum about 6 by 8 inches, which was greatly thickened and becoming gangrenous. The toilet of the peritoneum and wound-closure, as described in Case 1, was carried out. That night the patient was better, and improved for thirty hours, when he vomited. Then for twenty hours he vomited frequently, and finally the rejected matter became fecal in odor and appearance. It ceased as suddenly as it began, and his bowels moved. For four or five days he had a septic diarrhea, the evacuations having a very offensive odor. After this he made a smooth recovery, excepting that he had developed a wound infection that took nearly two weeks to clean up. It was most interesting to see the peritoneum take care of its big dose of poison, while the abdominal walls which had been in contact with the poison but a short time, and then washed as clean as could be, were unable to dispose of their comparatively moderate dose. Hereafter, I propose to throw into the small intestine high up, one or two ounces of magnesium sulphate in solution, as practised by McCosh. Had I done it in this case the temporary intestinal paralysis might have been obviated, and I been relieved of much anxiety. In both cases the foot of the bed was elevated, as taught by Clark, in order to take advantage of the drainage toward the diaphragm.

Two successful operations will not do more towards establishing a method of procedure than two swallows will do toward bringing spring; yet I hope that by dispensing with drainage in this class of cases, thereby giving the peritoneum every opportunity to perform its functions, some cases may be saved that would otherwise die.

DISCUSSION

Dr. J. H. Dunn: Dr. Pritchard asked me to discuss the paper, and as no one else wishes to say anything about it, I will say a word. I think I agree in a general way with the views of Dr. Pritchard. I think our mistake is that what we understand by drainage in general leads to some rather questionable practice in the peritoneum. To my notion the drainage

of the abdomen is different from other kinds of drainage. It seems to me the purpose of drainage in the abdomen is to do away with the bad effects of possible infection. Take it in a case of appendicitis where there is a so-called general peritonitis, and we find the peritoneum is full of pus. Sometimes these are not very unfavorable cases. There is a large amount of purulent exudate in the abdomen which it seems to take care of all right. In a case of appendicitis there are smaller regions where the peritoneum is deeply diseased or destroyed, which it is necessary to treat in some special way. It seems to me different from most kinds of drainage. It is necessary to carry something down to this vulnerable point. I think that is all the drainage of the peritoneum accomplishes. I believe there are certain cases in which it is necessary to drain the peritoneal cavity, but probably it is much overdone, and I imagined when I read in the title of this paper that the author had the idea of putting strips of gauze all through the abdomen. It seems to me that is wrong in theory, and practically of no avail. The title of the paper I believe was confined to general peritonitis. It is the rule when we have a general peritonitis, with very few exceptions, that the patient dies anyway. I have seen many cases opened, and they nearly always died. There seem to be some exceptions. I remember one case in particular where I think it might be said a general peritonitis existed, where I made a large incision in the middle of the abdomen, and evacuated a large amount of pus. I left it open, and put some gauze in for the purpose of keeping it open, and the patient recovered and is well to-day. This is one case out of a hundred, and I think there was something about the previous condition of the patient that brought it about. The child had had, years before, an enlarged abdomen, and I had reason to believe from the history of the case that there was a chronic process in this abdomen months before this acute attack, and I thought it was a case of tubercular peritonitis, which had recovered, and many months later it was believed by those in attendance that she had an acute appendicitis, and by evacuation of the pus the patient got well.

I think the general tenor of the paper meets with my approval exactly. All depends upon what we mean by drainage. It is necessary in all these cases to make an opening in the peritoneum, and it must be kept open in some way, and whatever may be used, whether gauze or a tube, does not act as a drain to the general cavity, for I do not believe that in that short time anything will be accomplished, for within three or four hours adhesions will wall off this space, but we accomplish a certain thing. The idea is not to drain the whole cavity, and I do not believe in stuffing the patient with gauze as a taxidermist stuffs animals.

Dr. Donald B. Pritchard (Essayist): I hoped to get some of the other surgeons present to give their views. I did not expect to teach anything, but hoped to learn something. I did not mean to confine the plan of treatment advocated to general peritonitis, but think it useful in peritonitis not walled off by adhesions. I am not prepared to advise closing, without drainage, cases in which the infected area is walled off by adhesions.

THE OBSTETRIC FORCEPS: MAY WE NOT SAFELY USE THEM IN EVERY CASE OF LABOR?

FREDERICK LEAVITT, M. D.
St. Paul

As long ago as the beginning of the 11th century, that most celebrated Arabian physician, Avicenna, is said to have described the use of an instrument which could be applied to the head of the fetus, and thereby aid delivery. Not until the time of the Chamberlens, however, more than 500 years later, was the modern forceps invented. For several generations this family of physicians kept the "art of delivering pregnant women in difficult cases by means of instruments" a secret, and it was many years after their death that models of the obstetric forceps were found in a secret room of Chamberlens' house. Since then improvements have been made from time to time, till now the forceps seems to fulfill every requirement.

When the forceps must be used, though an important theme for consideration, is a phase of the subject that I shall not discuss at this time. However essential it may be for one to know when the operation is imperative, at present I wish to inquire only how freely we may apply it. So then, putting to one side the accepted rules as to when forceps is demanded, let us consider when, if ever, its use is denied.

You will find that many of the rules laid down by distinguished obstetricians of a century ago were promulgated with the idea of discouraging the abuse, rather than the conservative use, of the forceps. It is stated that at one time instrumental interference was frequently had recourse to unnecessarily, and that nature was seldom or never allowed to accomplish her object. The hand was constantly thrust into the uterus, instruments were employed to extract the child, and the rudest means used to bring away the placenta. Thus a great revolution was effected in the practice of the age, and obstetricians were taught to rely more implicitly on the power and beneficence of nature. Denham, who flourished during

the first quarter of the 19th century, states in his work on midwifery, that, however cautiously applied, the evils arising from the unnecessary and improper use of forceps are so great that the world would doubtless be better off if no such instrument had ever been contrived for, or recommended in, the practice of obstetrics. A rule that he considered practical is stated thus: "The head of the child shall have rested for six hours as low as the perineum, that is, in a situation which would allow of its application, before the forceps is applied, though the pains should have altogether ceased during that time."

A generation later we find obstetricians teaching more liberty in the use of the forceps. For example, in 1841, Ramsbotham wrote, "If the head have been locked for four hours, and made no progress for six or eight hours, without waiting the limited twenty-four hours, or even twelve, the forceps may be applied." Some of the indications for instrumentation as laid down by him were subsiding pains, failing strength, sinking spirits, anxious countenance, rapid pulse, rigor, great tenderness of the abdomen over the uterus, green discharges, preternatural soreness of the vulva, with heat and tumefaction of the vagina,—teachings that hold good to-day.

The statement was made in a recent article by Lapthorn Smith, that while the forceps has saved the lives of hundreds, it has shipwrecked the lives of thousands. While I cannot believe this to be true, I do believe that many of the bad results accompanying parturition are wrongfully charged to instrumental interference. Ever since the day of Israel, when Rachel, the patriarch Jacob's wife, perished at the hands of a midwife, medical history has been full of warnings; and, indeed, we are still far from always knowing when nature may be aided by art. It may properly be contended that the best success comes through conservatism, and that the physician who is inclined to apply radical measures in the treatment of his cases stands in danger of doing more harm than good. On the other hand, I dare say, many of us err now and then in allowing things to take their own course.

Writers and instructors of to-day, like those of old, have thrown into their teachings an element of precau-

tion, while in their own practice they make use of the forceps with the greatest freedom. I have known this to be the case in some instances. Would it be safe to teach our students differently? This leads up to the inquiry: Does instrumental delivery add greatly to the dangers of labor? Are the complications and sequelæ enhanced by the proper or, to make it less exact, the careful use of the forceps? The point I aim to make is, that physicians *may* safely apply forceps in every case where time will permit, after the completion of the first stage of labor; that when this stage is over the obstetric moment has arrived when the patient may be placed in position, and instruments employed with benefit.

The advanced stand taken in the practice of obstetrics must ultimately bring the art entirely within the realm of surgery. It is only when viewed from this standpoint that we note any marked progress being made in the past or towards which we may look for greater perfection in the future. In this age of cleanliness we dare do things that might not safely have been undertaken years ago. It is barely half a century since the blades of the forceps, in order that the patient should not be shocked by their metal clang and that introduction might be less likely to injure the parturient structures, were covered with leather and kept well lubricated with neat's-foot oil. Could one imagine a more favorable nidus for bacterial growth outside a culture-tube!

Personally it is my experience that where the forceps has been used no bad results have followed, either in the immediate consequences to the soft parts, or in delaying convalescence. In fact, it is frequently noted that the patient's strength is less dissipated, and the puerperal period passed with greater comfort, following instrumental aid, than when exhausted by tedious though spontaneous delivery. Of course it goes without saying that in many instances there is little demand for forceps, and, in fact, time will not permit of its application. But where the second stage has lasted long enough to make proper preparations for the operation, its use need not be delayed until some note of warning informs us of danger. At the City and County Hospital it has been my custom to deliver nearly every case with instruments, and during a

service of five years we have had no complications resulting therefrom. It may be claimed that obstetrics as practiced in institutions permits of more interference with less evil results than in private practice. In a measure this is true, yet we are all able to bear testimony to the astonishingly good results amongst the lowly. Even in the hovel, where not a single thing is sterile, except, perhaps, a pot of boiling water on the kitchen stove, we have seen our cases recover rapidly and satisfactorily. If in maternity hospitals instrumentation is a rational procedure, then why is it not even more so in the homes of our patients? If we look upon accouchment as a surgical measure and conduct it accordingly, I believe that results will be better than if treated otherwise. The practice of conducting parturition under the bedclothes, to my mind, is reprehensible. It may be esthetic, but it is not surgical, nor even sanitary.

Let me draw a picture or two. Mrs. A. and Mrs. B. are both about to be confined. Mrs. A. has engaged the services of a physician who looks upon parturition from a medical standpoint; who considers his responsibility at an end when the cord is severed and the parents congratulated. During labor he urges voluntary effort on the part of the patient, contriving appliances whereby she may lay out her strength upon the foot-board of the bed, or possibly he may volunteer to be the other contestant in the tug of war going on. In vain does she beg of him to help her, and in vain does he assure her that he is doing all that he can. If everybody's strength holds out baby is finally born. With slight variations this is the common conduct of normal labor. On the other hand Mrs. B. is to be attended by a physician who assures her that straining and struggling serve only to tire her out, and that it is unnecessary. Her prayers for help are not unheard. An anesthetic is given; she is placed crosswise of the bed, the hips well to the edge of the mattress, and the feet placed upon the knees of the accoucheur or supported on either side by assistants; the external parts are cleansed; the instruments, which have been boiled and brought to hand, are cooled in a solution of lysol; the physician draws on a pair of rubber gloves; the forceps is slipped over the head of the fetus and the labor concluded completely under control. Progress may be closely watched, the parts kept clean, the perineum more easily protected

and repaired if lacerated, the placenta delivered, and the toilet made with a minimum of contamination. Furthermore, much time may be saved, and the patient's strength husbanded.

If I were asked to select from my armamentarium the instrument with which I would most unwillingly part, I assure you, fellow practitioners, there would be no faltering decision. Directly I should go to my case and grasp those dual blades, and nothing but a losing fight could wrest them from me.

DISCUSSION

Dr. L. A. Nippert: I do not like to see this paper passed without discussion, because it is a paper of great importance.

According to the idea expressed by the author of the paper, the process of parturition is either medical or surgical, and as a rule, since nature performs her duties in a manner which is natural, I do not believe that interference would be indicated. If, however, she is lagging, and the patient's strength is exhausted, then it is our duty to interfere. There are two periods when forceps is to be used: first, when the head of the fetus is above the brim of the pelvis; and, second, when the head comes down to the perineum, and contractions of the uterus become more slack and less powerful, and the child cannot be born without the aid of help. In the latter case I do not think there is any question but that the forceps should be used. In cases where the head does not engage in brim of the pelvis, forceps should be applied if the uterine contractions prove ineffectual to engage the head. It would be a great time-saving procedure to use forceps in every case, but I would ask the doctor if the dangers to mother and child connected with its use, would not outweigh by far this advantage. I would use the forceps only in the event that nature does not do her work without exhausting the patient too much.

Dr. Frederick Leavitt (Essayist): I am disappointed that my paper brought forth so little discussion. I had imagined that it would probably meet with considerable opposition. If silence lends consent, then I may infer that what I said has your acquiescence.

Dr. Nippert says that normal labor is neither surgical nor medical, but is purely physiological. In reply we might ask, Cannot the same be said of other propositions in our practice which are dealt with surgically or otherwise?

The doctor mentions some of the conditions requiring the use of instruments, but this is a phase of the subject that I did not discuss in my paper. The point I sought to make was that the forceps may be safely used in every case of labor. As to lacerations: it is my opinion that the perineum may be protected much better and easier with the forceps applied than without. When the stress comes I believe we may, by careful manipulations, control the descent of the head, and thus be more likely to prevent rupture of the soft parts than when the patient delivers herself without such aid.

INTESTINAL OBSTRUCTION

H. C. Cooney, M. D.
Princeton

Under the title of "Intestinal Obstruction" is included a great variety of conditions, which although unlike in character, have yet the common property of bringing about mechanically an obstruction to the passage of matter along the intestine. The symptoms produced by the various bowel-obstruction causes may be either exceedingly acute or, on the other hand, exceedingly chronic. In acute intussusception the disease may run its course to a fatal end inside of forty-eight hours, without there having been produced a definite obstruction to the lumen of the bowel. Conversely the colon may be actually plugged with a hardened fecal mass for a month or more, and yet a good recovery follow. Obstruction to the lumen of the bowel for a week or even more, all other circumstances being disregarded, is not in itself a condition which need cause death or even distressing inconvenience. In very acute cases, as illustrated by strangulation by a band or through hernial appertures, the grave initial symptoms which follow do not depend so much upon the fact that the lumen of the bowel is obstructed, but are due to the insult that the peritoneum and its numerous important nerves have suffered by the traumatism inflicted. The symptoms of acute bowel obstruction, intense pain with collapse and usually with vomiting, are by no means peculiar to intestinal obstruction alone, but are common to nearly all acute intra-abdominal lesions, as the twisting of the pedicle of an ovarian cyst, perforation of any of the hollow viscera, or the passage of calculi, renal or hepatic.

Certain phenomena which follow are undoubtedly due to actual obstruction, and prominent among them are constipation, and incessant nausea and vomiting with abdominal distention. The final symptoms of acute bowel-obstruction, those which precede death, are again not so much those due to occlusion of the bowel lumen as those depending on a general septic infection of the whole body from the offending intestine, and, if a certain stage has been passed, the mere relieving of the obstruction does not save life; therefore a conspicuous element in the surgical

treatment of bowel-obstruction is not only to relieve the actual mechanical cause of the trouble, but to empty the bowel of its poisoning contents.

A convenient classification when dealing with the pathology of intestinal obstruction is the following:

1. A strangulation by bands and through apertures including internal herniæ.

2. Volvulus; most frequent in sigmoid flexure, rare elsewhere.

3. Intussusception, which has its usual seat in the cecal segment.

4. Obturation due to foreign bodies; gall-stones, and enteroliths most often lodge in the lower ileum and cecum, excepting gall-stones which are apt to lodge in the jejunum, or upper ileum.

5. Stricture, more common in the colon than in the small intestine.

6. Obstructions due to tumors growing from the bowel wall may concern any portion of the intestinal canal, but are most common in the colon, sigmoid flexure, and rectum.

7. Obstruction due to tumors external to the bowel.

8. Fecal obturation of moment is met with only in the colon and is located most often in the cecum, and the sigmoid, hepatic, and splenic flexures.

The relative frequency of the various obstructions, according to the hospital records of the several institutions of Chicago to which I have had access, gives the relative proportion of the varieties in five hundred cases as follows:

		Location in 200 cases.	
		Large Intestine.	Small Intestine.
Strangulation	193	7	71
Intussusception	162	50	8
Volvulus	76	32	6
Gall-stones	49	4	12
Stricture of tumor.....	20	10	4

According to the table of Fitz, strangulation in early youth was rare: Forty per cent of his cases occurred between the ages of fifteen and thirty, and adhesions were the cause more than twice as frequently as vitelline remains. After thirty, adhesive bands were found to be the most frequent cause. In 70 per cent of the cases of this

clinician, obstruction by strangulation occurred in males; also nearly all the cases of obstruction by vitelline remains, adherent appendixes, and mesenteric and omential slits were found among men. The percentage of bands of intestinal and pelvic origin was about equal in both sexes. Bands and cords resulting from a pre-existing peritonitis were first in numerical importance as a cause of strangulation and incarceration. Their size varies from that of an ordinary twine string to the diameter of an inch or more, and in length from two to twenty inches.

Omental or mesenteric bands have their origin in a peritonitis issuing from the uterus or its adnexa, the vermiform appendix, or the biliary apparatus. Tubercular peritonitis, however, is the most frequent cause. Mesenteric bands differ from the isolated peritonitic bands in that they are usually thicker and longer than the latter. The entire omentum may be adherent and form one solid conglomeration attached in various places to the uterus, abdominal wall, intestine, etc.

Any one of the following structures: the vermiform appendix, Meckel's diverticulum or omphalomesenteric remains, free diverticula and appendices epiploicæ, may have its free ends so fixed by peritonitis, to the mesentery, intestine, or abdominal wall as to be the means of bringing about acute bowel-obstruction.

Incarceration may take place under or over a peritonitic band, also incarceration of the intestine occurs as a result of traction on adhesions, producing sharp bends or kinks in the bowel. This accident has been known to follow the evacuation of ovarian cysts by puncture, and pelvic abscess treated by vaginal incision.

Meckel's diverticulum may occur in two forms: 1. Those with a freely floating end, attached only to the intestine and being of variable length, may snare or knot around a loop of intestine (a very much elongated appendix has in rare instances been known to act in the same way). 2. The diverticulum may have a double insertion, one for the intestine with which it communicates, and the other attached either to the umbilicus or to the abdominal wall above the umbilicus. These diverticular strings may lead to incarceration similar to the peritoneal pseudo-ligaments. A rare cause of strangulation and incarceration is when a loop of bowel slips through a mesenteric or omental slit. In many cases these slits

can be more or less distinctly traced to an injury, and they are most common in the mesentery of the lower ileum. The slit may also be of congenital origin as described by Treves in his "Hunterian Lectures on the Anatomy of the Intestinal Canal and Peritoneum," London, 1885. Slits and apertures through the omentum following traumatism to the abdomen are occasionally responsible for incarceration. Dr. Quain describes an autopsy where forty inches of ileum passed through a slit in the broad ligament of the uterus.

It will be convenient to mention in this place the possibility of the occurrence of the several forms of internal herniæ, and very little examination into the history of the recorded cases will make it evident that "internal hernia" must not be confused with "internal strangulation." The following varieties come under the present heading:

1. DIAPHRAGMATIC HERNIA.—This variety may be of traumatic or congenital origin and rarely has a sac. Lachen deals with a series of 267 recorded cases, 150 of which were due to injury and 117 of them were of congenital origin. It is most common on the left side. The diaphragm may be pushed up as high as the second rib. The clinical manifestations of this form of hernia are subject to much variation. Many of the recorded cases have occurred in still-born children, or in infants that have lived but a few hours or days. The diagnosis is always difficult, according to Treves; out of 267 cases a correct diagnosis was made in only seven instances.

2. HERNIA INTO THE FOSSA DUODENOJEJUNALIS, OR RETROPERITONEAL HERNIA.—The fossa duodenalis is formed by a fold of peritoneum at the point where the duodenum ends in the jejunum. It lies to the left side of this point, and can be exposed by drawing the transverse colon upwards and following downward the under layer of the transverse mesocolon. In well marked specimens the fossa, which looks upward, will engage the thumb up to the first joint. This remarkable hernia has long been known to surgeons. Sir Astley Cooper seems to have been the first to recognize this as a veritable hernia, and he describes it in an excellent plate, in his great work on hernia. This hernia is much more common in males than in females, the proportion being about four to one. It is met with at all ages, but is most common in young adults.

3. HERNIA INTO THE FORAMEN OF WINSLOW.—This variety is exceedingly rare, as under normal conditions the foramen will admit only one finger, and its location is above the intestinal area, while the nearest segment of bowel to the aperture is the fixed duodenum.

Volvulus may be produced by two distinct methods. In one the bowel is so twisted upon its mesenteric axis, or, in rare cases, even upon its own axis, that it becomes occluded. In the other form two suitable coils of intestine are so intertwined or knotted together as to cause an obstruction to their lumen. Volvulus is most commonly met with in the sigmoid flexure, but may be found, as well, involving the ascending colon and cecum, or small intestine. Excessive length of the omega loop, with chronic constipation, is doubtless the chief predisposing cause of volvulus of the sigmoid.

By the term intussusception is understood the prolapse of one part of the intestine into that of an immediately adjoining portion. It may occur in any part of the intestine from the duodenum to the rectum. Enteric invaginations may occur in any part of the small intestine, but are most common in the lower jejunum. Colic intussusception presents numerous varieties. Lichtensteen, whose statistics are the largest, gives the different anatomical varieties and distribution of one hundred cases as follows: ileocecal forty-four per cent, enteric thirty per cent, colic (including rectal) eighteen per cent, and ileocolic eight per cent. Acute invagination becomes irreducible, chiefly through the formation of adhesions; peritonitis is excited in the invaginated mass, and the serous coats of the inner and middle layers become glued together. The most frequent location of adhesions in acute cases is at the neck of the intussusception. The adhesions may become so firm, in an invagination of fifteen hours' duration, as to render manual reduction impossible; on the contrary an invagination may persist for days and weeks as in the oft quoted case of Jonathan Hutchinson, who, after making a celiotomy on a child of two years of age, reduced a chronic intussusception from which the child had suffered for a month. The patient recovered. Many other examples could be given where spontaneous cure has resulted from sloughing and discharge, *per anum,* of the inner bowel layer.

Chronic cases very often terminate in acute strangula-

tion. The bowel above the intussusception is congested and dilated. The most marked changes are observed in the intussusception, the cylinders involved become intensely congested, and hemorrhages may occur into their substance or upon their surfaces. In acute cases this explains the source of the bloody discharges that are common in the history of these cases. One of the most important and constant changes is a condition of gangrene of the entering layer of bowel. This is met with in both acute and chronic cases, but, naturally, more often in the former.

DIAGNOSIS.—Let it be assumed that the surgeon has brought before him an acute case of intestinal obstruction. The clinical history as a rule is a sudden onset, and the patient is seized with severe abdominal pains, generally localized about the umbilicus, the great nerve-center of the intestine. At first there is little or no abdominal tenderness. There is collapse, with great depression, pallor, and a feeble, rapid pulse, a cold sweat, sighing respiration, early vomiting, composed first of stomach contents, then bilious, later brownish and offensive. The vomiting is copious and persistent, and gives no relief, and later on in the history of the case very generally becomes stercoraceous. There is constipation, usually absolute from the first. The abdomen becomes more or less distended, and later in the history becomes as a rule tender. The tongue is coated, the temperature subnormal, the urine is diminished in amount, and when the obstruction concerns the small intestine indicanuria is present. Indican is also present in the urine in peritonitis and in chronic obstruction of the colon and rectum.

The general treatment of bowel-obstruction may be embraced under the following headings: rest, the administration of morphia, the evacuation of the lower bowel, and the treatment by operation. Absolute rest in bed is indicated. Morphia is an absolute necessity in acute intestinal obstruction, and should be administered hypodermatically, without delay, in the smallest quantity sufficient to render the patient's condition endurable. A small dose can be added to, whereas a large dose cannot be withdrawn after once given. It should be borne in mind that this drug masks the true condition of the patient, builds false hope in his mind and in that of his friends, and that even a small dose may so modify the symptoms and the

general aspect of the case that the more characteristic manifestations of the obstruction are put entirely in abeyance,—the pain and vomiting may cease, the tongue become moist, the pulse slower and fuller, the amount of urine increases, and in fact the patient becomes quite comfortable. More than once I have observed this charmed lull, and at the operation found gangrenous bowel in the hernia-sac or in the abdomen. There had been no symptoms after the initial attack, and under the influence of the drug the attendant tells you that pain and the phenomena of death appeared. Yet morphia can do all this and more: it can disguise the very image of death, and make almost a mock of dying.

The lower bowel should be emptied by copious and repeated enemas given in the knee, breast, or Trendelenberg posture, and with sufficient hydrostatic pressure. If the cause of the obstruction is ileocecal or colic intussusception, reduction may follow thorough and intelligently administered colonic flushing. If the obstruction is due to stercoral impaction, this measure may so clear up the nature of the trouble that an undesirable laparotomy may be avoided. Under no circumstances in any case of suspected intestinal obstruction should any aperient or purgative be given, nor should much valuable time be lost carrying out the treatment by enemas; all this can be thoroughly tried while arrangements for laparotomy are being made, and at the outside should occupy but a few hours time, remembering that as a rule it is a fatal compromise to operate after long continued attempts to move the bowel by purgatives and enemas, have failed.

OPERATIVE TREATMENT OF INTESTINAL OBSTRUCTION.—Under the very best statistics purely medical treatment is credited with 33 per cent of cures of the total number of cases treated in this manner. So that clinicians must shoulder a responsibility of 66 per cent, or two-thirds, of fatal cases of the total number treated. Doubtless if the truth could be ascertained the leading men in internal medicine would gladly transfer all cases of intestinal obstruction to the surgeon, if it were not for the fact that laparotomy in itself is not an innocent procedure, and the results not much better, apparently, than by expectant treatment. This difference is probably more apparent than real. Unfortunately there are serious differences of opinion as regards the indications for operation

in intestinal obstruction, not only between medical men and surgeons, but among surgeons themselves. Statistics, both medical and surgical, are largely unreliable, and a more critical review of them is urgently desirable. According to Goldamm, Cruschmamm, and Furbringer, the mortality of obstruction treated by purely medical means varies from 65 per cent to 70 per cent; and according to Ashurst, F. Curtis, Treves, Poppert, Naunyn, Schram, and Obalinski, the mortality of obstruction treated by laparotomy varies from 60 per cent to 70 per cent. Kocher, whose results are among the very best, has a mortality of 38 per cent for all cases of intestinal obstruction treated by operation. The enormous mortality in spite of modern aseptic surgical technique is due to the pathological changes which take place with great rapidity in obstruction.

There is one measure for the treatment of acute intestinal obstruction, and that is by means of laparotomy. The operation should be performed at the earliest possible moment—as soon as the diagnosis is reasonably clear; and in cases of acute abdominal trouble where the diagnosis is not clear the better and safer course is to operate in all cases where there is a reasonable suspicion that the trouble is acute intestinal obstruction. It is true that the operation is dangerous, but to wait is worse. Unrelieved acute bowel-obstruction always ends in death. There is no purpose in delay, it is not conservative, but foolhardy, and the expectant treatment has had in the past a very extended and deadly trial. It is a fact that in cases of acute intussusception the number of cases, all told, where spontaneous cure has resulted, is not small, but when the whole number of such cases is considered the number that recover in this way are so miserably few that they form no kind of argument for depriving the patient of the hope of life by operation.

In occlusion forty-eight hours time is often sufficient to bring on a condition in which the simplest operation will be likely to end the case fatally. Delay means destruction of the epithelium of the mucosa, with early transit of micro-organisms and peritonitis. It is seldom indeed that the services of a surgeon are called for in time to afford a fair measure of success for the patient. It is, however, the duty of the surgeon to save life, irrespective of the completeness of the operation: frequently

he must decide between the adoption of a temporary enterostomy, with possible recovery, and completed details, with probable death.

It is not my intention to outline in detail the surgical conduct of these cases, for laparotomy for intestinal obstruction should not be undertaken by the tyro in surgery. He who undertakes it should be master of the situation, and familiar with every detail of the technique of abdominal surgery, and with the numerous complications with which he may be confronted. The most careful and perfect preparation should be made for the operation, and the operator must satisfy himself of the aseptic nature of everything that comes into contact with the peritoneum. The risk of operation in good hands, even in the cases of doubtful diagnosis, is infinitely less than leaving the case or trusting to other measures of treatment. The successful outcome of operation depends comparatively little upon the precise species of obstruction, and still less upon the *modus operandi*. It depends upon the condition of the bowel, and its condition is influenced more than anything else by the lapse of time. There is nearly always a tendency toward procrastination on the part of the patient, which is too often encouraged by the medical attendant, resorting to operation only as a last resource, when it should be the first resource.

A special degree of danger attends the administration of any anesthetic in operations for intestinal obstruction. This is especially true where operation has been unduly delayed, where there is considerable meteorism, and where the stomach is full of putrid contents. Gastric lavage should invariably be performed just prior to the administration of the anesthetic, otherwise it is by no means a rare experience that the patient suffocates in a gush of vomit; or, if not this, the likelihood of occurrence of septic aspiration-pneumonia is very considerable. The choice of anesthetics in operations for the relief of intestinal obstructions is a much debated question; personally my choice is for gas followed by ether. One-half hour before the anesthetic is started it is advisable to administer, hypodermatically, 1-20 gr. of strychnia sulphate. The less anesthetic given and the shorter its duration the better. There is probably no other condition met with in surgery, where speed and precision on the part of the operator count for any more than when operating for the

relief of intestinal obstruction. In some extreme cases no anesthetic whatever is admissible, and in such desperate cases enterostomy or inguinal colotomy may be completed under local anesthesia by cocain or eucain.

The incision in laparotomy for bowel obstruction should be in the median line below the umbilicus, and large enough to admit two fingers. In some few instances the diagnosis can be made at once; such instances are as fortunate as they are rare. In extreme cases, if the cause of the obstruction is not at once discovered, an enterostomy had better be made, and the bowel drained —a very essential part of the operation. This will accomplish a maximum amount of good by a minimum amount of surgery. Against this so-called makeshift operation a host of arguments may be advanced. The cause of the obstruction is left untouched. There may be a loop of bowel on the point of gangrene; if so the patient will die. On the other hand the fact remains that this undoubtedly uncouth measure has often saved life. It can be completed in a few minutes under local anesthesia, and the condition of the patient in this extreme type does not justify any extended search for the seat of the obstruction within the abdomen.

If the patient's condition is good the median incision is enlarged, without any waste of time, to a sufficient length to afford free access to the abdominal cavity. The ease of diagnosis increases with the size of the incision, without adding to the risk to any material degree. In drawing a dilated coil of intestine through too small an incision, or by the forcible introduction of the hand into the abdominal cavity, many small rents are made in the serous coat of the bowel, which lead to infection of the peritoneum. A methodical search should now be rapidly begun in a systematic manner, bearing in mind that in nine out of every ten cases of intestinal obstruction, the cause is located in the lower portion of the abdominal cavity below the umbilicus, and that in the great majority of these cases it is either in the right or the left inguinal region. Smith say: "The best guide to the seat of operation is not by manual exploration, but by visual examination assisted, if necessary, by extrusion of the bowels with suitable precautions for their reception."

A very essential thing to remember in the search for the obstruction is that the most dilated and congested coils

are nearest to the obstruction, and if followed in the direction of increasing hyperemia and distention, it will certainly lead to the stricture. The whole manipulation may be carried out with two fingers gently introduced. The finding of the collapsed bowel and following it up has been recommended, but often the pelvis contains no collapsed bowel, but only bowel less distended than other coils in the abdomen. Of course at the beginning of the search the various hernial apertures are explored. The cecum is examined, and if found much distended we may expect to find the trouble in the colon, which is then examined. If enormously dilated, as in the case of volvulus of the sigmoid, puncture of the most dilated portion of the coil with a good sized trocar to empty the bowel should be carried out. In the colon this measure is usually successful, whereas, in the small intestine puncture, or incision practiced for the relief of distention, will, as a rule, empty but a small portion of the gut. When confronted with an enormous distention of the small intestine, and the cause of the obstruction is not readily discovered, two possible courses of treatment may be considered: puncture of the bowel, of which I have just spoken, and extrusion of the most dilated coils into large, hot aceptic towels. The latter course is to be recommended as puncture of the small intestine for the relief of distention consumes much valuable time, and requires multiple punctures. Extrusion of the most dilated coils will often reveal the strangulated loop, and it is now accepted as a fact that allowing the bowels to extrude, if suitable precautions are observed, is not so grave a matter as a blind examination of the abdominal cavity with the whole hand introduced through an incision just large enough to admit it.

After the obstruction has been found and relieved the patient's chances for life, in many instances at least, are much better if the bowel is at once thoroughly drained, either by an incision or by several incisions, which may be closed after the bowel has been sufficiently emptied, or a temporary enterostomy may be made, which at a later period can be closed, with a less degree of danger to the patient's life than to return him to his bed at the primary operation with the bowel full of putrid contents, which is responsible for the fatal toxemia that destroys life, even though the cause of obstruction is relieved.

BIBLIOGRAPHY

Treves.—Intestinal Obstruction, 1899.
Tyson.—Practice of Med.
Fitz, R. H.—Trans. Congr. Phys. & Surg. Vol. 1, 1888.
Gibson, C. L.—Archives of Pediatrics, Feb., 1900.
Hemmeter, J. C.—Diseases of the Intestines, 1902.
Gibson, C. L.—Med. Record, July 17, 1897.
Goldspohn, A.—Med. Record, Sept. 8th, 1890.
Senn, N.—Intestinal Surgery, 1889.
Richardson, M. H.—Boston Med. & Surg. Journal, Oct. 26th, 1899.
Kocher.—Mittheilungen aus den Grenzgebieten der Medizin, 1898, Bd. IV, S. 2.
Boas.—Darmkrankheiten.
Smith, Greig.—Abdominal Surgery, 1896.
Einhorn, Max.—Diseases of the Intestines.

DISCUSSION

Dr. J. H. Dunn: My experience with these cases of intestinal obstruction is that the most difficult point is the diagnosis; the rest of it is very clear. The diagnosis many times is very difficult. I think perhaps in two-thirds of the cases of suspected obstruction that I have seen within the past few months, the patient escaped an unnecessary operation. Last night I was called to one, and I felt perhaps a little too conservative. The doctor in attendance thought he had a case of intussusception. He had a child of four or five months of age, rather a puny child. The bowels had been regular until two days ago, and since then they had not moved. He gave a high injection, but was unable to get any movement of the bowels. I asked at once if there had been any passage of blood from the bowels, and discovered there had been. Here we apparently had two of the three cardinal symptoms of intussusception, viz., constipation and discharge of bloody slime. No tumor could be detected. Now, I would not hesitate to make the diagnosis upon these two symptoms if I could be certain of the facts—certain that there was no fallacy in them. The blood was said to have been very little, and the question arose if it might not have been due to some injury in giving the injection. I could not be quite positive about that, so I concluded to wait until morning. Then the condition was about the same; the child had rested well during the night, had not vomited, the abdomen was flat and soft, and no tumor could be made out. I then concluded to give the child an anesthetic, and examine thoroughly. It had already been taken to the hospital, and all preparations for operation made. I was nearly ready to hesitate again when I discovered a small tumor, which I at once opened, and found an invagination of about seven or eight inches of the ileum into the cecum. This did not make as large a mass as is usual, for the intestine was very small.

The point I wish to enforce is that early diagnosis can be made if the observations are careful and reliable. If the observations are indefinite, are made by inexperienced persons, and are unreliable, we are very apt to err in attempting to make an early diagnosis. If I had time to detail cases which show how nearly I have consented to operation where it would have been bad to operate, I think I could make this point clear. It is not that we need any wonderful observations upon which to

make our diagnosis. We only need to be sure of the alleged facts; for example, in certain cases the passage of gas is sufficient to cause us to delay operation, but the question may arise whether the gas passed has been introduced by the nurse in giving the injection, and therefore I think the whole matter hinges upon this: As soon as obstruction of the bowels is suspected, a careful observation by reliable attendants should be constantly kept up until the facts are assured. In my experience I have generally been called to cases in which it was impossible for me to feel certain of much of anything—as to whether the bowels had or had not moved, whether gas passed had been introduced by the syringe or not, etc. I have never found any trouble in making the diagnosis when good observers have watched the case from the first. It is a simple matter if we can make sure of certain points in the diagnosis, and it need not take long to make these observations under proper conditions. There are cases of pseudo-obstruction where we cannot get a movement of the bowels. In one case I was almost persuaded by a most excellent diagnostician that there was obstruction of the bowels. Nothing had been through for forty-eight hours, but there was a marked peculiarity about the case, and I felt it was not exactly right for obstruction. We examined the urine in the morning, and found that the man had some gravel blocking the ureter, and in spite of numerous high enemata, given by the doctor himself, the bowels could not be moved. This man was first taken while riding in the country, and being shaken up. At first he had thought his pain was in the course of the ureter; and though the subsequent course of the trouble simulated obstruction of the bowels very perfectly, this was a sufficient hint to me, and I insisted upon an examination of the urine before agreeing to the proposal to operate for the obstruction.

Unless a very careful survey is made of all the facts bearing on the case, we are liable to err one way or the other, making the diagnosis too quick or too late. Too often physicians begin their treatment of suspected obstruction of the bowels by giving all kinds of physic, aid taking the statements of incompetent persons as to the action of the bowels. This is all wrong. The first thing should be not to give any physic. In fact, in the real cases of obstruction of the bowels the administration of cathartics is always wrong and always injurious. The first thing is to begin a very systematic investigation of the case, and the next is to attempt to move the bowels by high injections. If anything is to be given a little opium is better than physic. An old teacher of mine used to say, many years ago, that a dose of opium would sometimes do more to move the bowels than a big physic. There is some wisdom in this. In certain cases of obstruction belladonna and atropin are useful while we are waiting to make a positive diagnosis in these pseudo-obstruction cases. Once the diagnosis is made, the operation is not so difficult to make. In the case this morning there was considerable fluid in the abdomen. We should always be careful to make a positive diagnosis before we operate, as operation is only justifiable where such a procedure is absolutely necessary.

Dr. Archibald MacLaren: Dr. Cooney speaks of the medical mortality of obstruction as being between sixty and sev-

enty per cent. It seems to me that any statistics of intestinal obstruction must be very unsatisfactory from the medical standpoint. Temporary obstruction, which might be produced by a variety of conditions, and is overcome medically, probably never was true obstruction. Some slight intestinal invaginations of the pseudo form, such as Dr. Dunn speaks of, are easily confused with obstinate cases of constipation, and, if they are included in the medical statistics, prove a prolific source of error. But if they are included, then it seems to me that the medical mortality should not reach so high a figure, because from all causes Curtis, whom Dr. Cooney quotes, finds the operative mortality only between 60 and 70 per cent. It was only yesterday that I looked this matter up, and I find Curtis quotes 370 operative cases of obstruction of which 69 per cent. died. In his table the favorable and unfavorable cases are mixed indiscriminately. There were some where no operation should have been done, and would not have been done to-day. In favorable cases of obstruction the mortality should be much less than the figures given. During the past year I have operated upon five cases of obstruction, two of them died and three recovered. One case of intussusception in which there was a gangrenous condition of the intestine, and where forty-two inches of intestine was resected, the patient entirely recovered. This was one of the worst of the bad class of cases, although the obstruction had been partially overcome. I remember a physician friend of mine telling me some fifteen years ago that his wife had passed ten inches of intestine after ten days of obstruction. I doubted it very much at the time; I always believed that the history of many of these cases was imaginary. In this case of mine it might have been possible for the patient to have passed even so large a portion of the small intestine, if it had not been for the mesentery, for there was a large wedge-shaped piece of gangrenous mesentery outside of the surrounding healthy bowel.

Weir quotes thirty cases of obstruction of the bowels with a mortality of 100 per cent. where operation on the bowel was necessary in the large intestine. A great many cases of obstruction are almost certain to be fatal under any line of treatment, and it is only in this class of cases, I presume, that Dr. Cooney and Dr. Dunn referred to where the formation of an artificial anus would be justifiable. I had one case of post-operative obstruction last year where it was necessary to make an artificial anus. This woman recovered after a protracted, stormy convalescence.

The only new thing offered of late upon the treatment of bad cases of obstruction of the bowels is by Maylard. He quotes six bad cases of obstruction of the bowels, three or four of which recovered, where he eviscerated the patients, and made three or four openings in the intestines, washed them out, and stripped them. In three of his cases there was apparently paralysis of the bowel, and the stripping helped to clear out the decomposed contents of the small intestine. Puncture with a trocar or a large needle or even a single opening in the intestine, is very unsatisfactory. We do not get out enough of the intestinal contents, and you will have difficulty in crowding the intestine back

into the abdomen and closing it, but Maylard quoted a very bad case in which it took him two hours to empty the intestine, suture the wounds, and drop the intestine back into place, which recovered. There is no question about Maylard's honesty or experience in intestinal surgery.

Dr. W. E. Rochford: I want to say a word in reference to intestinal obstruction, due to old hernias having become strangulated. It would seem at this time that anyone practicing medicine and surgery would not delay operating in a case of strangulation due to hernia. In all cases of strangulation of the bowel, hernia should be kept in mind. I operated on a case last week of a middle-aged person who had had an umbilical, incarcerated hernia for years, which had been causing symptoms of strangulation for fifteen days prior to operation. Physic and high injections had been given without results. At the end of fifteen days, when I was first called to see the case, all the active symptoms of strangulation were pronounced, and no time was lost in taking the patient to the hospital for operation. When the abdomen was opened, I found the bowel, omentum, and parietal wall gangrenous. A resection of the gangrenous portion of the bowel was made as quickly as possible, but before the operation could be completed, the patient died.

I think too many men lack the courage to operate on these cases before it is too late. The greatest conservatism is in operating at once, and not depending on medicine. I believe one of the most harmful things that can be done for a patient, is to give physic under these circumstances. Opium is indicated.

Dr. R. C. Dugan: I wish to call attention to a condition in strangulated hernia of which I have heard but little said, namely, strangulation of the arterial circulation without obstruction of the bowel lumen. I have been called to cases of strangulation, and have been assured that no strangulation could exist, because there had been free bowel movement. In one case, in particular, there was a copious bowel movement every day, and the friends refused operation until the man was moribund. On opening the sac the bowel was found looped around the mesentery, completely strangulating the arterial circulation with scarcely any effect on the bowel lumen.

The rule that there is no strangulation if there is free bowel movement, will not hold good.

Dr. Wm. H. Magie: I wish to speak in this connection of a case of intestinal obstruction that came to my notice some years ago, and in which I was called as consultant surgeon to make a laparotomy. Upon examination I found the obstruction was due to distended bladder. This woman had complete obstruction of the bowels for two or three days with fecal vomiting and almost collapse. I suggested to the attending physician that we catheterize her, which we did, and relieved the bladder of an enormous amount of urine, but the patient died the next day of toxemia, due to the obstruction.

I think obstructions of this kind are rare. I do not recall ever hearing of a case of complete obstruction of the bowel due to distended bladder where it ended fatally.

Dr. F. A. Dunsmoor: This paper is like charity: it covers a

multitude of sins. There is much to be said on the subject, and if full opportunity for discussion were given, it would be beyond the limit of the session of this society, I am sure. The doctor has brought out the fact in general about the difference in statistics of surgical and medicinal treatment of obstruction of the bowels, and there are as many different classifications of this subject as of the topic which was brought to my mind this morning when a certain clergyman addressed this audience. Everybody thought he was a colored man. I noticed what Bishop Potter said on a similar occasion where people who are supposed to be white objected to the introduction of a black person in the pulpit. The bishop brought out the scientific fact that black is the absence of all color, and white is a conglomeration of all colors; therefore he had the pleasure of introducing a colorless man to a colored congregation. (Laughter.) There are thousands of obstructions of the bowels removed by medicine that are not obstructions at all. I have a certain lady friend who does not do such an unpoetical thing as have a movement of the bowels oftener than once a week, and I have others who have a stool as often as they eat. Patients may have a passage every day if they have obstruction of the bowels high up. You may call it what you will it will smell as sweet by any other name. It depends upon whether it is from the cause Dr. Dunn mentioned, whether it is an intussusception, or whether he made out the diagnosis and found it to be appendicitis; but what he did cured the youngster. We can massage some impacted feces to a cure if they come in our way, but a twist with adhesions is different.

All those associated with strangulated hernia can be relieved. When you have an obstruction due to infection, or obstruction produced by gangrene and a general peritonitis present, you could not remove a large portion of the intestinal tract in order to discover where the trouble is, and, as Joe Price says, you need not wait long, for somebody is going to die, and it is the person operated on.

The outlook for these cases that do not need our help is something that has been quoted by Dr. MacLaren. Those who attended the American Medical Association will remember that, when discussion came up on appendicitis, it was said no use had ever been discovered for the appendix, and one speaker got up and said he had found a use for the appendix. He had been in the habit, in certain conditions of obstruction of the bowel, to wash out the intestine by opening the gut and injecting saline solution. On one occasion, when he made a resection of the appendix, he introduced his irrigation tube through it and washed the intestinal tract with normal salt solution. It was a quicker and better method, and he did not have to take the intestines out of the cavity. You can see the point: he added another fluid to that already decomposed in the bowel, and mechanically emptied and disinfected this tract. Some of the cases that die in spite of what we do for them, do so because there is left within the intestinal tract a large amount of badly decomposed accumulation which we have not been able to get rid of.

Dr. H. C. Cooney (Essayist): I do not advise enterostomy, except in extreme cases and where the condition of the patient does not admit of an extended search and a prolonged operation, and in cases of strangulated hernia where the bowel is gangrenous and the general condition of the patient bad for resection. In such cases, under local anesthesia, I open and irrigate the sac, and at once incise the gangrenous bowel, leaving the stricture undivided. In this way the protective barrier of lymph at the internal ring is not broken down, and the peritoneal cavity is less likely to become infected. Whatever arguments may be advanced for dividing the stricture in this class of cases the procedure is not supported by experience. As soon as the bowel becomes gangrenous nearly all tension is removed from the parts, especially when the gas and edematous effusion, which attend the process, is evacuated by the incision.

NEPHROPEXY, WITH ESPECIAL REFERENCE TO THE INDICATIONS FOR, AND THE METHOD OF, PERFORMING THE OPERATION, WITH REPORT OF ILLUSTRATIVE CASES

A. E. BENJAMIN, M. D.
Minneapolis

Surgeons in different parts of the world have devoted years of study to find a suitable way in which a prolapsed or floating kidney that gives trouble may be anchored securely in a comfortable position, so that the symptoms caused by the excessive mobility would disappear, and at the same time not interfere with the healthful functions of the organ. The location and structure of the organ has made the problem a difficult one. The association of a prolapsed or floating kidney with ptosis of other contiguous abdominal organs, makes this matter still more perplexing. The positions and supports of these other organs must be considered in dealing with the renal displacements. In this paper I shall consider displacements of the right kidney only, that being the one with which we are accustomed to deal, and which is the cause for the most complaint.

A true floating kidney may be completely enveloped

by the peritoneum. The fatty capsule envelopes the kidney, and may contain some muscle, as well as fibrous tissue. This membrane is loosely adherent to the fibrous capsule in the normal state. Besides enveloping the kidney it surrounds the blood-vessels and ureter, which pass into the organ. This capsule is quite redundant in some cases, especially is this noticed in prolapsed and floating kidneys.

The kidneys are held in their normal position by other forces. A deep paravertebral notch favors the retention of the kidney in its place. If these notches are cylindrical they are a factor in the malposition of the organ. The vessels and ureter are also forces, which keep the kidney high up in the body. A normal amount of perirenal fat assists in retaining the kidney in its place. The relaxed condition of the abdominal muscles or a lack of support of the pelvic floor is a factor to be considered. Ptosis of any or all of the abdominal and pelvic organs, described as Glenard's disease, increases the possibility of a prolapse or ptosis of the kidney. The body form of the individual has been considered by a few writers of recent date as an important element in the causation of misplaced kidneys. Dr. M. L. Harris, in an article read before the 1901 meeting of the American Surgical Association, considered this subject at length. He claims to be able to solve by a mathematical problem the question of floating kidney in the individual. He divides the abdomen into three zones, viz., upper, middle, and lower. A plane passed through the body level with the end of the sternum indicates the lower border of the upper zone. A plane passed through the lower portion of the 10th rib marks the lower border of the middle zone. This plane also bounds the upper border of the lower zone. Dr. Harris demonstrates quite conclusively, by lateral and anteroposterior measurements, a diminished area in the middle zone in proportion to the upper zone in persons having prolapsed kidney. This does not allow the kidney to remain in the contracted space, and therefore prolapse occurs. The formula for the index expressed by Becker and Lemhoff (Deutsche Medicinische Wochenschrift, 1898 Bd. xxiv, p. 508) is as follows:

Distance jugulo-symphisis divided by the least abdominal circumference and multiplied by 100 equals the index.

Any index above 77 indicates a prolapsed kidney. With one below that figure we should expect to find a kidney in the normal position. This plan has been followed out by the writer in quite a large number of cases, and in most instances the rule has held good.

The normal movements of the kidney correspond to the rise and fall of the diaphragm in the respiratory movements, and is from 2 to 4 cm. in the longitudinal direction. The degrees of abdominal mobility of the kidney may be divided, arbitrarily, into three stages (Harris):

1. When one half of the kidney can be felt below the 12th rib.

2. When the whole of the kidney can be palpated below the 12th rib, and where the hand can be passed around the organ.

3. When the kidney may be depressed to the pelvic brim, or moved beyond the line.

In this article I have used the word prolapse to define a kidney which has an abnormal mobility, excepting the form which is known as floating kidney. The former is common and acquired, the latter is congenital, according to Goelet, and has a long mesonephron. Prolapsed kidney is so common in women that many authors give the percentage as high as 25 per cent, others even higher. Goelet says 50 per cent of these suffer. Yet there is no disease that is so frequently unrecognized as this affection, and, furthermore, if discovered, a great majority of physicians are unwilling to admit that any of the symptoms present are due at all to a prolapsed kidney. "A bilious attack," "indigestion," "gall-stones," "appendicitis," etc., are frequent explanatory terms used by physicians to describe the attacks of suffering. Appendicitis, colocystitis, jaundice, pyloric obstruction, etc., are possible complications of a prolapsed kidney. The primary cause of discomfort, if analyzed carefully, however, in some cases will be found to be due to a misplaced kidney.

The various symptoms and complications associated with kidney prolapse have been enumerated at length by Goelet, and so complete is the list that I have embodied it in this article.

1. Chronic digestive disturbances, manifested by distention of intestine and irritability of stomach.

2. Nervousness, restlessness, and insomnia.
3. Usually fatigue after standing or walking.
4. Palpitation of the heart, vertigo, and syncope.
5. Pain over part of stomach and part of heart.
6. Dragging pain of loins extending down the thigh, increased by standing or walking.
7. Inability to rest on the other side comfortably.
8. Irritability of bladder.
9. Jaundice.
10. Pain over region of appendix, as in appendicitis.
11. Pain referred to the ovarian region.
12. Acute attacks of pain resembling renal colic.

A case may present any one of these symptoms or a number of them. With such a complexity of symptoms it is not easy to separate cause from effect, or to determine which is the most essential symptom to relieve. Of course I would not presume to say that any or all of these symptoms are due at all times to the kidney prolapse. A great many of them, even though associated with kidney prolapse, have no causal relation whatsoever. By carefully watching and recording the details of a case, I am quite certain we are able to trace the original cause of the discomfort. When a thorough trial has been made of properly fitting abdominal belts and pads, and after regulation of the diet, habits, etc., and we get no relief of symptoms, and when the kidney continues prolapsed, I am convinced the proper procedure is to operate. If there is a general ptosis of the abdominal organs, the abdominal bandages are imperative, although some authors claim even when this is the case that the other organs will assume more of a normal position after the kidney is fastened in place. Some men go so far as to say that there is no such thing as a prolapsed kidney alone, without more or less general ptosis of all of the abdominal organs. I am quite sure that any surgeon who has observed these cases and has made careful examinations, will deny that statement. We often observe this condition in young women and girls, where a general ptosis is positively absent. Goelet says that "pads and bandages are useless, that the operation, *per se,* is devoid of risks, and that it should be performed, and that it is a simple procedure, and is effectual." It is only a reasonable conclusion to decide to operate when these symptoms are persistently recurrent or continuous, in spite of the

mechanical treatment. It is a gratifying result, too, when, after the operation, the complaint ceases, and the patient remains well, so far as the diseases dependent upon the misplacement are concerned. The operation should not be opposed by men who are either ignorant of the result obtained or who are unable and incapable of doing the operation.

The literature is full of articles by eminent surgeons who have made a special study of prolapsed kidney, and now that these men can say from experience that operations are successful, it is important that we all consider this subject with due care. We should not turn away patients with a prescription, a cholagogue, or instructions to eat less, etc. We should not fail to recognize the true cause of the complaint and the remedy for it.

As great a number of operations has been devised for anchoring a prolapsed kidney, as there are operators. We should remember, however, certain facts, and be governed by certain principles, in our work for relief.

Guyon was the operator who first removed the fatty capsule and part of the fibrous capsule. Duret, Guyon, Treves, Keen, Wilcox, Hildebrand and others scratch the kidney after introducing stitches through the parenchyma. Lane, Baldwin, Morris, Selini, and Edebohls use the capsule proper to fix the kidney. Craig, A. L. Smith, R. R. Smith, Schiosso, Rice, and a few others strip the kidney capsule back, insert or pass sutures through the border or reflectral portion and through the kidney substance. Sottocosa proposes to stitch a bundle of the fibers of the quadratus lumborum muscle into a trough of kidney substance. Vulliet stitches part of the tendon of the erector spinæ under the fibrous capsule. Other men have performed similar operations, using muscle fibers or tendon structure as a support. Beyea describes, in an article in the Pennsylvania Medical Journal, May, 1902, a method of holding the kidney in place by passing two small rubber tubes on either side of the ureter, bringing them out into the center of the wound, and tying them over gauze. Senn, instead of using rubber tubes, uses idoform gauze strips.

These various methods are all modifications of the original. We know that cicatrical tissue often stretches so that in time the kidney may become prolapsed when held in place only by such force. Stitches, when passed

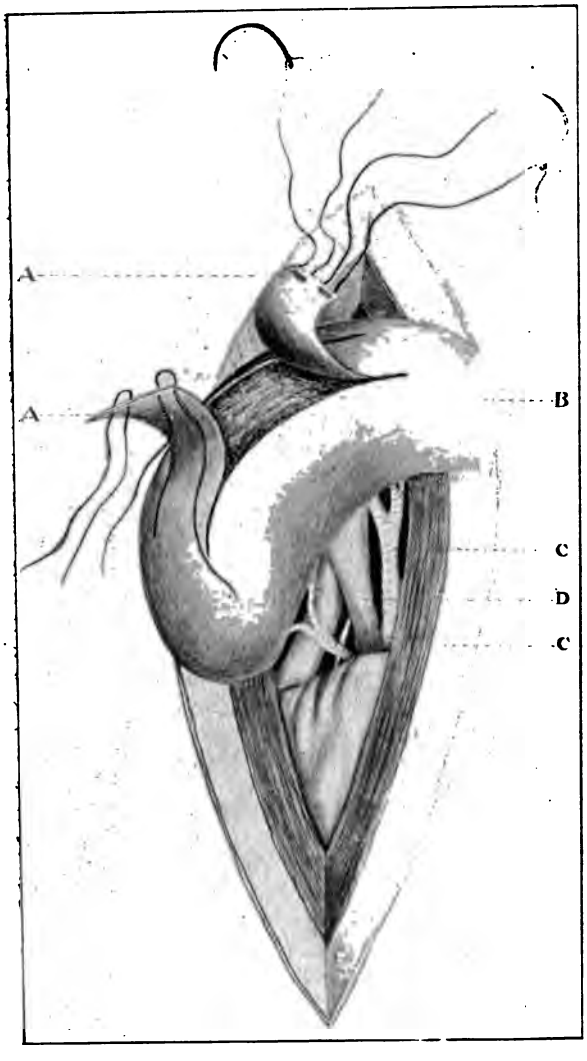
through the kidney substance and fibrous capsule, have been easily cut out. A kidney that has been prolapsed is congested and swollen, and is more likely to have this happen. I am quite convinced that many operators trace their failure to this fact. Many patients, after an operation, cough, strain, or vomit, and hence produce much force upon these stitches. It has also been demonstrated that sutures passed through the kidney substance cause atrophy of some of its structure, which is replaced by fibrous tissue.

An operation which, to my mind, is the most satisfactory, is one where the force is not all borne by these stitches alone, but has other anchorages to depend upon. It has been the tendency of some operators to fasten a kidney as high as possible. When we consider the investigations of Harris and others, which indicate that the area in which the kidney should be placed is too small for its retention, that mistake will be avoided by fastening the kidney at a lower level. It is not so much the position as the excursions of the kidney that cause trouble. If the kidney is fastened too high, it may be gradually crowded down to the lower level again.

The operation which the writer has performed on a few cases of late, is only a modification of a number of others described in articles written by different operators. It consists mainly in dissecting a strip of the fibrous capsule in a longitudinal direction, making two flaps, one at either pole of the kidney. (See Drawing No. 1.) When the dissection is made in this direction we shall have flaps long enough to bring up between the quadratus lumborum muscles fibres on either side of the wound, and can fasten them in that position. (See Drawing No. II.) The muscle-fibers impinging upon these flaps give additional support, and do not permit the sutures to cut through the capsule. When the flaps are dissected in the other direction, transversely, the flaps secured are very short and are of little avail as a support, for they are not long enough to bring up between the muscle-fibers.

The technique of the rest of the operation is about as described by other authors, and can be traced in the description of the operation under Case I. Other important features of the technique are as follows: A

Drawing No. I



AA—Reflected flaps of fibrous capsule
B—Kidney
CC—Renal vessels
D—Ureter

blunt dissection of the muscle, avoiding the cutting the iliohypogastric nerve, leaves a denuded portion of the kidney between the flaps which adheres to the muscle and fibrous tissue in its proximity, and forms an additional support ultimately. The gauze drain, which extends down to the kidney substance, increases the plastic exudate. All complications that are possible to be remedied, I operate upon at the same time. The soreness and tenderness in the right iliac region, which may simulate a chronic appendicitis, often disappear after the kidney has been anchored.

I have recorded below some of the cases which I have operated upon recently, according to the method described herein. While the operations which I have done previous to the adoption of this method have been fairly satisfactory, the results have not been as perfect as those obtained by this method. I have purposely reported a few cases that have not been operated upon, so as to bring out the question as regards the advisability of operation.

CASE 1.—Miss L——, aged 19, complained a great deal of back-ache, nervousness, and pain in the right side, below the 12th rib. Urine contained a great deal of albumen and a few casts. There was also some pus. She had suffered nearly two years as she remembered. She had general malaise, and tired easily. The pain in the hypochondriac region was severe if she exercised, walked or stood long. She was nauseated quite frequently after eating. She had spent much of her time in bed for several months. Upon examination the right kidney was found prolapsed a little below the 2d degree. The measurement at the smallest diameter of the waist was 23 inches, and the jugulo-symphysis (sterno-pubic) measurement was 20 inches. This gives us an index that would, according to the formula, show a floating kidney.

After treating the patient for some time with pads and bandages, and putting her on the appropriate diet and remedies for patients suffering with nephritis, with very little effect, an operation was determined upon. A few days previous to the operation the urine from the separate kidneys was secured by the use of the Harris segregator. The urine from both kidneys was found to

Drawing No. II

A—Point at which incision is made down to kidney B
C—Quadratus lumborum through which the incision is made, and where fibrous flaps are anchored

contain albumen, although the right one was worse. The usual preparation was made for the operation. On Jan. 23, 1902, the operation was performed with the patient nearly in Sims' position and with the large sandbag lying beneath the patient below the 12th rib, which increased the distance between the ribs and the crest of the ilium. An incision was made external to the erector spinæ muscle, continuing downward from the 12th rib for about three inches and a half. The muscle tissue was divided in the direction of its fibers. Sponge-holders were clamped on the fatty capsule, and by pressure on the abdomen the kidney was gradually worked through the wound, the fatty capsule was incised and stripped from the fibrous capsule, to which it was slightly adherent. The fatty capsule was turned back and

puckered up at the lower pole of the kidney, making a pocket in which the kidney rested. The perirenal fat was stitched in this position. A portion of it was anchored to the lower angle of the wound with chromicized catgut. The opening was then made at the lower external and posterior border of the kidney through the fibrous capsule. With a small, blunt instrument passed through this opening, the capsule was separated from the kidney longitudinally to the extent of three inches and laterally one and one-half inches. In this manner very little hemorrhage takes place, much less than usually occurs where this is separated and incised with the knife. An incision on either side of this stripped-up portion of the fibrous capsule, in a longitudinal direction, and a cross cut in the center, formed two separate flaps, being attached to either end of the kidney (Fig. 1). These were now stitched by chromicized catgut after the kidney was replaced in the body into the upper and lower portions of the wound, the muscles closing upon the flaps finally holding them securely. A strip of iodoform gauze was passed from the center of the wound down to the kidney substance for drainage and to favor plastic exudation. The rest of the wound was closed by the figure-of-eight silkworm-gut sutures tied over gauze. The gauze drain was left five days, when a smaller one was introduced. This drainage was kept up for about ten days. Marked improvement seemed to be manifest in the quantity and quality of the urine. The albumen seemed to gradually decrease, and the amount of urine to increase. On Feb. 7 no albumen was found, and very little was found subsequent to that, until her discharge from the hospital, which was on Feb. 25. The urine had increased in quantity from 14 ounces to about 36 ounces in 24 hours. Since that time up to the present she has had no pain in the right side. She feels less nervous, and her appetite and digestion are better. She has not gained much in flesh, but is much improved otherwise. There is some albumen present, but not nearly so much as before the operation.

I have found that her left kidney is somewhat prolapsed at the present time, and she begins to complain of pain in that region. The right one remains

fixed in the position in which it was anchored. The left kidney was not found prolapsed in examinations previous to the operation, although it may have been out of position at times other than when examined. We may possibly account for the continued presence of albumen and pain partially because of the prolapse of this kidney. I am not inclined to give the operation all the credit for the diminution of the albumen, for rest itself is of great importance, but its effect is temporary while that of the operation may be permanent. While we have not absolutely cured this patient of all her symptoms, we have given her enough relief to have warranted the operation, and to indicate greater possibilities in these cases in the future.

CASE 2.—Mrs. H——, aged 37, married, one child, complained for a number of years of a dragging pain in the right side below the 12th rib, and radiating down into the right pelvis. She had been operated on for appendicitis, ovarian and tubal diseases and lacerations. Although the appendix had been removed three years ago, a dragging pain and soreness still continued in the right iliac fossa. She was greatly troubled with obstipation. The right kidney was found at various times to become prolapsed about to the 3d degree; at other times it was found in normal position. Occasionally she would complain of severe pain in the right side; at other times she would have little pain except the soreness and dragging feeling. When the pain was most severe there seemed to be an obstruction of the ascending colon, caused by the prolapsed kidney.

An operation was determined upon, and was performed March 14, 1902. The operation was done in the same manner as in case No. 1. Drainage was left for six days. The wound healed perfectly. Examination at the present time shows the kidney to be in the position in which it was anchored. The patient has had no soreness or dragging pain since the operation, and according to her statement the pain from which she had been suffering for so many years has been relieved.

CASE 3.—Mrs. S——, American, aged 33, married about 14 years, weighed 123 pounds, consulted me about a pain in her right side that was almost continuous, and was especially noticeable during the last six months,

but had been first observed two and a half years since. Most of the time the pain was dull in character, extended down from the region of the liver into the pelvis, and was also noticed in the region of the navel. Occasionally she felt an acute pain in the side.

Upon examination I found the right kidney prolapsed into a little beyond the 2d degree, and very tender. Upon pressure it would recede, but would become prolapsed again, even while the patient was in the recumbent position. There was a great deal of tenderness over the region of the appendix. She had had no acute attack of appendicitis, but undoubtedly there was inflammation in and around the appendix. An examination showed the urine negative. An operation was performed May 7, 1902, and performed as described in Case 1. An Alexander's operation was performed at the same time for a badly retroflexed uterus. The fatty capsule was found firmly adherent to the fibrous capsule at the lower end. This case is of so recent date that we are unable to say what the outcome will be. The patient has had no complications since the operation, but is still in the hospital.

CASE 4.—Mrs. S——, aged 35, has three children, complains of a heavy, dragging, dull pain in the right side below the 12th rib. Occasionally she has severe pain with nausea and vomiting. These attacks are similar to the Dietel's crisis and resemble a renal colic. They are evidently due to the sudden twisting of the pedicle, causing a kinking of the renal vessels and a drawing on the renal nerves. Assuming a recumbent position, for a short time after these attacks, gives the patient relief. The extreme soreness of the kidney gradually disappears. Upon examination the right kidney is found prolapsed at times, a little below the 2d degree. Pads, corsets and bandages are all inadequate for the relief of these attacks. This patient has not yet been operated upon.

CASE 5.—Mrs. T——, aged 45, married, no children, had an attack of gastro-enteritis one year ago, but has had more or less trouble with her stomach for a number of years. She is distressed after eating, and has occasional attacks of vomiting upon rising from a recumbent position. The pain in her right side has been

getting worse. She is jaundiced, sometimes more than others. According to Reid, this is probably due to the kidney drawing upon the hepaticoduodenal ligament, or, as happened in two of Wolff's cases, it might be due to the pressure on the bile-ducts. The attacks of vomiting come on suddenly, and the pain is quite severe afterward. The gastro-intestinal tract is now in good condition, and her attacks of vomiting are independent of any trouble in the stomach or intestines. She has lately had swelling of the limbs. Examination reveals the right kidney prolapsed to the 2d degree. Pads and bandages relieve her somewhat. Upon a careful analysis of her case, I find no other reason to account for the jaundice, attacks of vomiting and pain, and perhaps the swelling of the lower extremities than the prolapsed kidney. Pressure upon the kidney in this case, as in all other cases reported, caused a great deal of pain.

The conclusions that I wish to offer are as follows:

1. A certain percentage of prolapsed kidneys cause discomfort.

2. Prolapsed kidney often produces reflex symptoms.

3. Prolapsed kidney is often associated with various complications or dependent conditions.

4. Symptoms depending upon prolapsed kidney are frequently attributed to other sources.

5. The degree of prolapse does not always determine the proportionate amount of discomfort.

6. When the symptoms present have been traced conclusively to a prolapsed kidney, and when the suffering cannot be relieved by pads or bandages, an operation should be advised.

7. The operation should be one which will anchor the kidney most securely in the position most comfortable to the patient.

8. The operation, properly performed, gives most satisfactory relief.

BIBLIOGRAPHY

Edebohls.—Australasian Edition of Annals of Surgery, Vol. XXXV., No. 2, March, 1902.
Edebohls.—Medical Record, May 4, 1901, p. 690, Vol. 59, No. 18.
Beyea.—Pennsylvania Medical Journal, May, 1902.
Habershom.—Edinburgh Medical Journal, May, 1900.
Morris.—Medical Record, Feb. 23, 1901, p. 284, Vol. 59, No. 8.

Goelet.—American Medicine, Dec. 28, 1901, Vol. 2, No. 26.
Davis Byron.—Journal American Medical Association, May 10, 1902, Vol. 37, No. 19, p. 1208.
Harris.—Journal American Medical Association, June 1, 1901, Vol. 36, p. 1527.
Marcy, Alex. J.—Journal American Medical Association, Feb. 9, 1902, Vol. 36, No. 6.
Abt.—Journal American Medical Association, April 27, 1901, Vol. 36, No. 17.
Kelley.—British Medical Journal, Feb. 1, 1902, No. 2144.
MacLaren.—St. Paul Medical Journal, June, 1901.
Goelet.—Medical Record, June 1, 1901, Vol. 59, No. 22.

DISCUSSION

Dr. J. E. Moore: I want to make a few remarks upon the doctor's excellent paper. It is a paper of interest to both medical men and surgeons, because we are confronted with floating kidneys every day. Every man who looks for them will find them. The practical question arises as to when operation is indicated, and this the doctor has well answered. I have generally advised against operation in these cases until the symptoms were very positive as indicating operation, and it seems to me we can reduce them almost to a general axiom, and say that when floating kidney is giving rise to symptoms, whether mental or physical, we should operate. I would especially emphasize the mental. I have women come to me suffering with kidney disease simply, and they are suffering only in mind, and I have sent them away telling them so. I have had a woman come back and insist that she was suffering terribly when I was satisfied that the suffering was in her head, and I finally anchored the kidney and cured the mental condition. So I believe the mental anxiety caused by a kidney bumping around in the abdomen is an indication for operation.

The doctor's operation is a new one; it is a practical one and involves only a limited amount of laceration of the organ. I have secured best results from the more conservative operation of Dr. Deaver of Philadelphia. Get down and separate the kidney from its fatty capsule, and bring it up into the wound; slip a strip of iodoform gauze under either end of the kidney; then have the loose ends on the outside, and swing the kidney in them; and finally bring up the ends of the gauze, and tie them so you have the kidney swung in the gauze. After six or eight days the dressing can be removed, the gauze slipped out, and you get very excellent results.

Dr. W. E. Rochford: I have had the pleasure of seeing Dr. Benjamin do the operation described. Theoretically it looks like a good operation, but I feel a little as Dr. Moore, that it is a rather severe one. It seems to me there is danger in handling the kidney so much. Lifting the kidney into the outer world, and denuding a large surface of its capsule, cannot be performed without a good deal of trauma. I would expect to have this operation followed by some pretty severe symptoms. Personally I have operated upon only one case, and in this one the results, after six or seven months, are fairly satisfactory. I did practically the Senn operation, putting in two sutures, and packing with iodoform gauze. This is an operation which any one can do who is at all skilled in surgical work. We need more light

on the subject, for few of us have performed many operations of this character.

If I remember correctly Dr. Abbott told me a little while ago that at the last meeting of the Mississippi Valley Medical Association the consensus of opinions of the surgeons who discussed the subject there was that the operation is one to be performed only in severe cases; and that generally the results are unsatisfactory.

There is one point that Dr. Benjamin mentioned which deserves emphasis; it is that there is danger of anchoring the kidney too high.

Dr. J. L. Rothrock: The question of when to operate for this condition is one which must be settled by the surgeon in individual cases. About one of every four slender women have some degree of movability of the right kidney, yet clinical experience shows that only when the condition has existed for some time and has become pronounced does it give rise to serious symptoms.

I have never been willing to operate in the absence of pronounced symptoms, and think it best, if on casual examination of a patient I find a movable kidney, to say nothing to the patient about it, if I find on careful inquiry that it has given rise to no symptoms. Many of these patients are highly neurotic, and wnere symptoms from the movable kidney are not especially pronounced I have seen excellent results from the rest cure. In the presence of pronounced symptoms, manifested by pain in the side or back with the presence of a palpable tumor falling to the level of the umbilicus, gastric disturbances or Dietel's crises, with lateral curvature of the spine, occasioned by the patient's effort to assume the most comfortable position, it becomes imperative to operate.

The operation which I have employed consists in exposing the kidney by the usual incision, removing the fatty capsule, and incising the true capsule for at least two-thirds its length. Three silk sutures are then passed through the folded edge of the capsule on either side of the incision, and through the fascia of the quadratus lumborum, bringing the kidney into close contact with the muscle. The sutures are placed one near the upper pole of the kidney, one about the middle, and one near the lower pole. In this way the kidney will be firmly held in place, and rotation will be impossible. The wound is then closed without drainage. In six cases on which I have performed this operation the results have been entirely satisfactory.

Dr. A. E. Benjamin (Essayist): I think the operation of Dr. Moore is a very good one; however, we are not sure how long the kidney will remain in place on account of the cicatricial tissue which is apt to stretch. In the operation I have described the flaps hold the kidney in position, and we have, in addition, the cicatricial tissue. We do know that sometimes in nephritis removing the capsule of the kidney in part does some good. It did in the case mentioned. I can hardly attribute the results obtained in the one case to the fact that she remained in bed for a certain time. The amount of urine was increased, and the amount of albumen was decreased. Removing the capsule in

part, and establishing a different circulation for the kidney, is theoretically good. We shall have to wait a time, however, to see whether this operation produces the desired results. The handling of the kidney is very little. You can pull upon it, and hardly produce any injury. The kidney is worked out of the wound, which procedure does no harm. You could not fasten a kidney very well without producing some traumatism, yet by this method we do not irritate the cortex of the kidney, we simply separate the fibrous capsule, and there is little hemorrhage and much less traumatism in this way than there is by the introduction of a suture. There is not much danger in this operation. I have not heard of any cases where bad symptoms appeared afterwards. There is occasionally a little blood in the urine when the kidney is injured, but I have not had any blood in the urine where I have not injured the cortex.

I think Dr. Rothrock said that each case had to be settled according to the indications present. Neurasthenics are bad cases, and I would not promise good results always. I am asked if the kidney will remain in place. I never guarantee a cure. I tell the patients they have to take the chances. Where symptoms point directly to prolapsed kidney an operation is indicated.

The character of the operation often determines the success, and results are what count. Dr. Rothrock did not mention whether he left the suture in place. Silk is taken care of very nicely where there is a chance of its being passed out afterwards, but whether or not it causes any trouble in these cases, I am not sure. I think chromicized catgut lasts long enough to be of the benefit we wish it to be. I have never had suppuration in any of these cases.

REPORT OF TWO CASES OF ECTOPIC PREGNANCY, WITH DISCUSSION OF THE DIAGNOSIS AND THE TIME TO OPERATE

George E. Barton, M. D.
Minneapolis

I was called on April 23, 1901, about 6 p. m., to see Mrs. R——, a little English woman 34 years old. She was suffering intensely with pain in the abdomen, but did not show any marked anemic appearance, and as I had never seen the patient before, I did not know but what the pallor shown was due to the shock produced by the pain. I found considerable difficulty in getting a history of the case, but finally secured the following:

She had eaten a very hearty meal of pork and boiled cabbage about noon, and at about two she was getting ready to go down town, when she suddenly felt a desire to have her bowels move. She went to the closet, and was taken with such severe pain she grew faint, and sank down upon the floor. This was about 2 p. m., and I was called at 6 p. m. I learned, together with the above facts, that she was 34 years old, and had three children, the youngest being five years old. Between the last confinement and the present time she had two miscarriages. She missed her menstrual period four weeks ago; but had had a slight show to-day. Her pulse was rapid and weak, temperature 100°, abdomen tender and somewhat distended. She was nauseated, but had not vomited. She was given a hypodermic of ¼ gr. morphia, and morphia was ordered as needed for pain. I was not called during the night, but saw her early in the morning, when I found her much easier. She was considerably distended and tender over the abdomen, and referred the point of greatest pain and tenderness to the left side about on a level with the crest of the ilium. Her temperature was 101°, and pulse considerably over 100. She was having what was apparently a scanty menstruation. On making a vaginal examination the uterus seemed a little larger and softer than usual. Outside of that, owing to the great amount of abdominal tenderness, I could tell little or nothing.

I believed it to be a case of ectopic pregnancy, but did not feel certain of my diagnosis. I called Dr. Sweetser in council, and after going over the case pretty carefully we decided there was at least enough in her condition to cause doubt as to the diagnosis. I sent her to the hospital the next day, applied turpentine stupes, got the bowels open, and in a couple of days the tenderness had disappeared so that we could make an examination. We found a mass on the left side of the uterus. The woman had suffered from a bronchorrhea for a number of years, and this now seemed to be made worse, so that while we were positive of our diagnosis we feared to give her an anesthetic.

We kept her at the hospital until the morning of May 7th before operating. On April 28th she expelled almost a complete cast of the uterus which, with dysuria

completed the clinical picture. On May 6th she again had some pain so that we were convinced that longer delay was dangerous. On the morning of May 7th, she was taken to the operating-room, given chloroform, and with the assistance of Dr. Sweetser and the internes of St. Barnabas Hospital, the abdomen was opened. The pelvis was found full of clotted blood with considerable adhesions, but none very firm. We also found the unruptured sac of an ectopic pregnancy in the fimbriated extremity of the left tube, and the ovary, tube, and clots united by adhesions. The mass was removed without rupturing the sac. The clots were then removed as rapidly as possible, the pelvis washed out with normal salt solution, and the abdomen closed. She stood the operation well, and was put to bed in good condition; pulse 100, respiration 24. The next morning the pulse was 120, temperature 101°, and respiration 40. In the evening she became quite cyanosed; the lungs were very full of râles, and there was beginning consolidation of the base of both lungs. On the 9th the respiration was 48 and pulse 132. On the 10th the pulse reached 140, temperature 103.2°, and respiration 48. From that day on she gradually improved though with a few bad indications; for instance, on the 20th from normal her temperature suddenly shot up to 102.6°, pulse 132, respiration 40; but it was normal on the morning of the 21st. The lung difficulty was treated with ammon. carb., digitalis, belladonna and strychnia, five gr. Dover's powder at bed time and divided doses of calomel for the bowels. The stitches were removed the eighth day. So far as the abdomen was concerned the patient had no unfavorable symptoms after operation. She made a good recovery and was up and about in four weeks after the operation.

On March 4, 1902, I was called by Dr. Poehler to see in council with him Mrs. F——. The doctor gave me the following history: She was 35 years old; had had six children, the youngest child being two years old; no miscarriages; no trouble at any of her confinements and never had any pelvic trouble of any kind, except that for the past six months she had leucorrhea, but had never consulted a physician with regard to it; she had missed one menstrual period, and believed herself normally

pregnant. This was just about the time for her second menstruation. Eight days prior to my being called she was taken with pain, and vomited after eating quite freely of some pears. She also grew quite faint. Dr. Poehler was called, and found the patient quite weak with a rapid, weak pulse and considerable pain and tenderness over the abdomen. He gave her an anodyne, and kept her in bed. The trouble soon passed, and in two or three days she was up and about. She referred the pain to the median line. Until this time she had felt the same as at any previous pregnancy. On the following Sunday, just one week from her first attack, her husband came to the doctor for some more medicine, as his wife was not feeling quite so well. That night the doctor was called, and in the morning he summoned me. I saw a pale woman, with pulse 110, considerably prostrated and temperature a little above normal. She was comparatively comfortable, although she had considerable tenderness over the abdomen. A digital examination revealed a retroflexed uterus, a little enlarged and softened, the body of the uterus being very tender. Outside of this I could feel nothing abnormal. The woman thought she was threatened with a miscarriage. We decided the strong probability was that we were dealing with a case of ectopic pregnancy, and so told the husband, and advised the immediate removal of the patient to St. Barnabas Hospital, where we could carefully watch her; and she was taken there that day. She was given a laxative, and turpentine stupes were applied to relieve the tenderness. The next day she was taken to the dressing-room and examined. We could feel nothing but the body of a retroflexed uterus, which was very tender to the touch and a sort of crepitation, which was quite distinct on bimanual examination. We could not feel a mass on either side of the uterus, so that, when we were through with the examination, we felt that it was possible we might be wrong in our diagnosis, and it still might be a normal pregnancy in a retroflexed uterus.

Until this time there has been no flow whatever, and at no time during her sickness had she had the severe pain usually seen in these cases. Tuesday night, —the night following the examination,—she again had

an attack of faintness and some pain; flowed some; and a uterine cast was expeled, which we did not learn until Wednesday noon, when we at once went to the hospital where we found her pulseless, in extreme pallor, terribly nauseated, and vomiting. We gave her morphia, atropin, and strychnia; also a hypodermoclysis of eight ounces of normal salt solution under each breast. She soon began to rally, and continued to improve. We kept her slightly under the influence of morphia until the next morning at 8 o'clock, when she was in fairly good condition. She was given an anesthetic by Dr. Stout, and assisted by Drs. Sweetser, Dart and Poehler, I quickly opened the abdomen, and found it full of liquid blood. I made an opening into which I could put my whole hand, and reaching down behind the retroflexed uterus and feeling out to the right, I at once found the mass attached to the lateral wall of the pelvis by adhesions, which gave way readily, and the mass was delivered, the pedicle tied with catgut, and cut off external to the ovary, the pregnancy being in the fimbriated extremity of the right tube. The operation was completed by thoroughly washing out the abdomen with normal salt solution, and leaving the pelvis full of the solution. The abdomen was then closed with catgut for the peritoneum and with silk-worm gut through the muscle, fat, and skin. The thica of the muscle was brought together with continuous catgut before tying the silk-worm gut. The operation lasted 30 minutes. Before the patient was removed from the table she was given an enema of 30 grs. carb. of ammonia, three ounces of brandy, and three eggs in eight ounces of normal salt solution. She was put to bed in good condition. Her convalescence was uninterrupted by a single unfavorable symptom, except that on the day after the operation her temperature rose to 102°, but without a corresponding rise in the pulse-rate. She left the hospital two weeks after the operation, but was required to stay in bed one week longer.

This patient, I am confident, would have died, had I attempted the operation during collapse. The specimen showed almost a round opening through which the fetus had escaped, but the fetus itself was not found.

Both these patients thought they were normally

pregnant and neither had any symptoms different from any preceding pregnancy, and neither gave any history of having had any pelvic trouble, except that Mrs. F—— had leucorrhea for some six months prior to this trouble.

The diagnosis of early ectopic pregnancy involves the diagnosis before rupture, and the diagnosis after rupture. The symptoms before rupture—for instance during the first two months of pregnancy—are those of normal pregnancy with, as in the two cases reported, no other symptoms until rupture takes place, or at least partial rupture.

If any other symptoms develop during the first two months, pain will be one of them. Pain will often be complained of in the region of the ovaries in the early months of normal pregnancy. A little flow may appear, and continue constantly from very early pregnancy. This also may be true in normal pregnancy during a threatened abortion. Both pain and flow being found in other conditions is not diagnostic of ectopic pregnancy. The presence of one or both of these symptoms, however, together with the ordinary symptoms of pregnancy, may cause the patient to seek advice when the physician, on making an examination, finds an enlarged and softened uterus, the physical indications of normal pregnancy, but nothing else, for during the first six or eight weeks of tubal pregnancy the mass is so small that in a patient with a thick walled abdomen, it may not be found.

Suppose, however, you do find a mass with all the other symptoms of pregnancy. There are other conditions of the tubes and ovaries which will give rise to a mass, which may never have been discovered until the woman has been examined, because of symptoms produced in the mass by a normal pregnancy.

I know of no symptoms upon which a positive diagnosis of early unruptured tubal pregnancy can be made. I think, however, the presumption may be strong enough to justify one in operating, because the mass will probably be one that should be removed. To substantiate my position I want to quote from a few well-known men.

Joseph Price says: "The diagnosis before rupture

is rarely made and when it is made it is of necessity not positive, because the same set of symptoms may arise from a number of pathological conditions; for example, a retroflexed gravid uterus, an ovarian cyst, a uterine fibroid and hematosalpinx have all been mistaken for tubal pregnancy; moreover, the physician rarely sees such cases until rupture has taken place."

Dr. Baldy of Philadelphia, says: "The diagnosis before rupture I consider beyond the reach of man, and I never expect to see the time when it can be made with certainty and accuracy."

Tait stated that while it may be held and proven by operation that ectopic gestation has existed, still in other cases where the diagnosis is just as positive with just as strong presumptive evidence, an error in diagnosis will be found to have been made and no ectopic pregnancy exists.

Dr. Howard Kelly says: "Although the diagnosis in an unruptured case may sometimes be easy, mistakes may also occur especially when the patient is seen but once."

Rupture of an ectopic gestation may be suspected when the patient offers a history of having failed to see her sickness for one or two periods, and the other ordinary symptoms of pregnancy associated with more or less discomfort on one side; a sudden attack of violent tearing pain, followed by syncope; symptoms of internal hemorrhage; and a state of collapse. "A physical examination affords but little information, as, unless the tumor is sufficiently large to cause a sensation of resistance upon one side, the physical signs are indefinite" (Montgomery). Rupture is similated by lesions of the abdominal viscera, such as perforating ulcers in the stomach, duodenum, small intestine, and vermiform appendix; rupture of a pyosalpinx; torsion of the pedicle of a small ovarian cyst; acute intestinal obstruction; renal and biliary colic, and, I will add, the severe pain and collapse occurring in an acute ileocolitis. If, however, the above symptoms are followed by a rise of temperature, tenderness over the lower abdomen, with dysuria, constipation, and the expulsion of a more or less complete cast of the uterus, the diagnosis can be made positively;

for this forms a group of symptoms not found in any other condition.

When the surgeon sees a case of ruptured ectopic pregnancy, and has made his diagnosis, the question to be decided is whether the best interests of the patient will be conserved by operating immediately or by waiting until the patient rallies. My judgment is on the side of those who wait. Those of the opposite view say the indication is to stop the hemorrhage at once by operating. Yet the history of the cases shows that the majority of them do rally, and when they rally then they are in condition to stand the shock of the operation, and they recover; while, if operated upon in profound shock, the majority of them die.

I remember that while attending the clinics of Dr. Joseph Price, he refused to operate on a case in collapse. He said the patient would rally, and she did. Dr. J. W. Elliot, of Boston, in the Medical Record, reports twenty cases in all of which he waited, and all recovered. In the Massachusetts General Hospital for the past five years seventy-five cases have been operated upon with three deaths, and the three that died were all operated upon immediately after admission, and all were in a more or less collapsed state.

These, with numerous other reports, it seems to me, show very decidedly the advantage of waiting.

DISCUSSION

Dr. H. B. Sweetser: I have been interested in this paper because I was present and assisted Dr. Barton in the operation. I agree with him that it is wise to defer operation until the shock of hemorrhage is somewhat recovered from, because it is a fact that death seldom follows a primary rupture of an ectopic sac. Of course this is debatable ground, but statistics bear me out in this, as does also my personal experience. Patients often die after a second or third hemorrhage, but there can be no doubt of the diagnosis after the first, and of course operation ought to be done as soon after this as the patient rallies.

Dr. Archibald MacLaren: I would certainly object to the proposition that you wait any length of time for the shock to pass off, or that the operator wait, as I understand was done in this case, for two days. Within the past year I have had two deaths inside of that time from secondary hemorrhage in ectopic gestation. I remember a case I saw with Dr. Whittemore, where the first hemorrhage occurred in the morning, and the woman died that same evening, just as we came into the

house, and as we sat helplessly by looking at her, not being prepared to operate.

I can recall several cases where women might have been saved by immediate operation, while I cannot recall a single case which died as a result of operating too soon. In seeing a woman while under the most profound collapse, it might be justifiable to wait fifteen minutes or half an hour, but if you wait any length of time a great many of these patients will bleed to death. As a rule I think the safest time to operate is immediately after rupture, as soon as you can make your preparations, and this will save the larger number.

There is practically no shock produced by simply making a cut in the abdominal wall. Where a woman is bleeding very badly, give the anesthetic and at the same time give a saline solution hypodermically. I have opened the abdomen a number of times with almost no anesthesia. They do not have much pain, they do not suffer much, and one can certainly stop the bleeding, and that is where the danger of shock lies.

The vaginal operation also comes under consideration where we find the patient a certain length of time after rupture. In such cases the vaginal operation has to be considered, because in many cases after the formation of a pelvic hematoma the danger of peritoneal infection in opening and cleaning out the blood clot from above is considerable. I have seen a number of cases where acute peritonitis was caused by opening the abdomen sometime after the hemorrhage had occurred, and it is in this class of cases where Kelly originally advised the making of the vaginal section.

Dr. L. A. Nippert: I have been more unfortunate in my practice than Dr. Barton, for I have met with eighteen cases of puerperal eclampsia. A number of these had been in the hands of midwives, and some have been my own. In some the urine had been watched up to the last moment, and nothing abnormal was found, yet during confinement convulsions occurred. In others, in which albumin and casts were found in large quantities, no eclampsia occurred.

I was rather disappointed that the doctor could not give us a definite answer as to the cause of eclampsia, for it is a subject that appeals to every practitioner. We should never neglect to examine the urine of pregnant women from the beginning, and at frequent intervals. I have been in the habit of directing patients how to boil their urine; and while this is not an accurate test, it has been the means of early detecting abnormal urinary secretion in several cases, in some of which I think treatment has prevented the occurrence of eclampsia. While we are in the dark about the pathogenesis of the disease, still we can do much in an empirical way by timely attention to the function of the kidneys. Midwives should be compelled to make an examination of the urine. Many of these cases have been in the hands of midwives who have paid no attention to the urine, although the history pointed clearly to renal inefficiency.

Dr. Geo. C. Barton (Essayist): There is nothing special I wish to say other than this: The point I desired to make in presenting the paper was simply to call attention to the fact,

first, that diagnosis of an unruptured ectopic pregnancy in the early months is not easy, and I think impossible to make it certainly; second, that at the time of rupture there may be conditions in the history or in the general condition of the patient that makes it difficult, at that time, to be certain of the diagnosis. The third point is the one that has been discussed, and that is in regard to waiting after rupture for the patient to rally before operating. I feel quite sure that all cases I have seen were the better for waiting. This woman described, especially, could not have stood the operation at the time she was in profound shock, but after she recovered from the shock she stood the operation very well. It was a complete rupture and the abdominal cavity was filled with blood, but she rallied from the shock, stood the operation well, and had no bad results afterwards.

THE INFLUENCE OF AGE UPON SURGICAL OPERATIONS

JAMES E. MOORE, M. D.
Minneapolis

While we all feel that there are additional dangers connected with operations upon infants and aged people I am convinced that many of the real dangers have been exaggerated and that many supposed dangers are purely imaginary. I have no knowledge of a death following a surgical operation which could possibly be attributed to the age of the patient, but I have known of many patients denied the advantages of an operation on account of their age. Granting that there are additional dangers from operation upon these patients, we must also remember that they have less resisting power with which to contend against the conditions for which operations are indicated and that they will more readily succumb to these diseases than persons in middle life.

Tissue repair is very active in infancy. Solutions of continuity in both bony and soft tissues are repaired in less time than in adults. It is quite generally believed that repair is tardy and uncertain in aged persons, but I have not found it so in practice where the wound is aseptic. It is a generally accepted fact in surgery that old people do not do well with suppurating wounds. I have no reason to believe that they are specially liable

to pyogenic infection. We have all learned that we can expect bony union of fractures in old persons in the average time and with even a greater degree of certainty than in middle life. Ununited fractures occur in the majority of instances in persons under forty years of age. Ununited fractures of the hip are due to causes entirely independent of the age of the patient.

A large mortality-rate has heretofore accompanied operations upon the aged, but it is very largely due to the fact that these patients have been denied the advantages of operation, except in extremis. Imperative surgery is accompanied by a high mortality-rate at any age.

The objections to operations in childhood seem to be based entirely upon prejudice, for I can find no facts whatever to sustain them. Personally I have found that young children bear operations remarkably well. They have good hearts, good lungs, and good kidneys; why should they not be good subjects for surgery?

Oliver Wendell Holmes said that a man is as old as his arteries. From a surgical standpoint I think we can truthfully say that a man is as old as his kidneys. In 1893 Dr. Chas. L. Gibson wrote a very excellent paper bearing upon this subject, taking as a basis a report of all patients over seventy years old operated upon in St. Luke's Hospital, New York, for thirty-three years (Annaus of Surgery, Vol. 18, page 426). There were sixty-five cases operated upon with a mortality-rate of 24.5 per cent. This was all imperative surgery, and one-half of the deaths were due to uremia. Many of the patients were old men with enlarged prostates, with accompanying cystitis and nephritis. Many of the cases were operated upon in pre-antiseptic days, and quite a few died septic. An interesting point brought out in this paper is that all of the deaths from uremia occurred between the eleventh and thirty-second days, the average time being fifteen days.

Dr. James P. Tuttle contributed an article to the Journal of the A. M. A., May 9, 1901, entitled "Results of Surgery in the Aged," in which he reports one hundred and thirty-one patients operated upon who were over sixty years old, with a mortality-rate of a little less than 3 per cent. This illustrates, in a measure, the ad-

vantage of modern methods over older methods when compared with Dr. Gibson's report of 24.5 per cent mortality, but Dr. Tuttle rejected as unfit for operation all cases in which there were serious kidney lesions, and, as a consequence, had no death from uremia, which caused one-half of Dr. Gibson's mortality-rate. Dr. Tuttle says his patients did not suffer from shock, and maintains that the fact that a person has lived to an advanced age shows that he has either had naturally a strong constitution or that he has taken good care of himself, either of which makes him a good subject for operation.

Old people as a class are not choice subjects for operation, but this is not because of their age, *per se,* but on account of diseases that may exist. Diseased kidneys, atheromatous arteries, weak hearts, and chronic bronchitis are the most common unfavorable conditions met with, but none of these, except the atheroma, are peculiar to old age.

Much has been said of the dangers of anesthesia in the extremes of age, but the truth is that children bear anesthetics exceptionally well, and healthy old people are very good subjects for anesthesia. Chloroform is undoubtedly the best anesthetic for both children and aged people. This is admitted by many who are strongly prejudiced in favor of ether. Prolonged anesthesia is neither safe nor justifiable in either infants or aged people.

Every old person upon whom an operation is about to be performed should have all of his organs, especially the kidneys, very carefully examined, but this rule applies alike to all ages, and the surgeon who does not follow it systematically is sure to meet with some uncomfortable surprises, and an occasional death that with proper care could have been prevented. Neither a moderate degree of valvular heart disease or albuminuria is a contraindication to anesthesia. Conditions frequently arise when an operation becomes imperative even in the presence of grave kidney lesions; in fact, the recent evidence of Edebohls, Ferguson, Guiteras, and other reliable men leads us to believe that we may in future relieve some of these kidney lesions themselves by surgical intervention. When recognized, as they always

should be, much can be done in the way of preparatory and after-treatment to avert the danger of uremia. The skin should be stimulated to healthy activity in every possible way. Judicious bathing, followed by brisk rubbing, is very helpful. Abundance of water taken internally helps to flush out the kidneys and to stimulate them to do their best without overworking them. Hypodermoclysis before the patient revives from the anesthetic, repeated later or followed by enemata of salt water, are of inestimable value in these cases. It has been my practice for some time to get feeble patients, no matter from what cause, and robust patients who are about to undergo a dangerous or tedious operation, well under the influence of strychnia before operation, and by so doing I know that I have prevented shock, and I believe that I have saved life. For example, under this treatment I have been enabled to remove a very large sarcomatous kidney without any evidence of shock whatever. To an average adult 1-30 of a grain of strychnia is given hypodermatically every six hours, beginning two or three days before the operation, and an extra dose of the same size is administered about one hour before the operation.

Very young children are not fit subjects for bloody or prolonged operations because they do not bear the loss of blood well, and they are prone to shock. With our modern methods of hemostasis the first danger is reduced to the minimum. The tissues are very vascular and bleed freely, but when all of the blood-vessels are promptly cared for the capillary oozing will not be dangerous. It is my practice to give strychnia to every child upon which an operation of any magnitude is to be performed, in doses proportionate to its age. The little one should always be wrapped in blankets during the operation, and its bed should be thoroughly warmed by hot-water bags. I am sure that our adult patients often suffer from loss of heat from undue exposure while upon the operating-table and during transportation to and from the operating-room. A special effort should be made when operating upon children to shorten the time consumed in the operation.

It is impossible in this brief paper to even mention all

of the subjects upon which age has an important bearing, but brief attention to a few may be of interest.

A new era has just opened up in prostatic surgery, and in the next five years greater advances will be made in this branch of surgery than in all time before. When a patient with an enlarged prostate comes to the surgeon the question should not be, how many years has this patient lived, but what is the condition of his kidneys? Many causes have contributed to the unpopularity of prostatectomy, chief among which, of course, was the high mortality-rate, but this mortality-rate was due to bad technic and to the fact that patients were not operated upon until their kidneys were destroyed, and not to the age of the patient. This mortality-rate has been greatly reduced within the past year by the development of the perineal operation, and as soon as we get our patients educated to accept the operation before the kidneys are involved it will become a safe and popular one.

Many old people afflicted with hernia suffer so much from it that they get but little pleasure or comfort out of life. The age of the patient should not interfere with operation in these cases, for old people bear it well.

Hemorrhoids are also a frequent cause of suffering and ill health in the aged, which can and should be relieved by operation. Thus I might go on indefinitely, but this is sufficient to illustrate the point I wish to make, viz., that a patient need very rarely be denied the advantages of a surgical operation on account of his age.

In the consideration of the surgery of infancy we naturally think of congenital deformities first. Generally speaking the earlier these defects are operated upon the better. It is a very common practice of family physicians to advise the parents of a child born with club-foot to wait until it is two or three years old before having it treated. This is very bad advice for which there is no excuse, because a new-born babe can bear the treatment as well as an older child. These cases should all be treated early so that when the child begins to walk he will walk upon the bottom of his feet. Harelip can as well be treated in the first few weeks of life as later, and where the deformity is such as to interfere with the

child's taking nourishment it should be operated upon at once. The consensus of opinion is that cleft palate, whether accompanying a harelip or not, should be left until the child is from two or four years old, because the operation upon an infant is dangerous from hemorrhage and those operated upon later seem to talk as well as those operated upon earlier. All cases of well-marked spina bifida should be operated upon, because the operation is reasonably safe and satisfactory, and without operation the patient either dies or lives in a condition worse than death.

Age has an important bearing upon the treatment of rachitic deformities. Up to the time when the patient's bones become hardened, which is usually about the fourth year, these deformities should be treated by braces, but after hardening has taken place the sooner they are operated upon the better.

Tuberculosis of joints and bones occupies a very important place in the surgery of childhood. Most of these cases can be treated best without operation, but it is a very grave and unfortunately a very common error to allow a child to go from bad to worse, and even to become generally tubercular under mechanical treatment when a timely operation would save it. Those who are most frequently guilty of these mistakes call themselves conservatives, but the truth is they are just the opposite. The knife is many times the greatest conservative agent. As a rule operations upon children's joints should be atypical, removing only the diseased tissues, thus preserving the growth-centers, and often saving motion in the joint. A typical resection of a joint in a child is seldom justifiable because it leaves a shortened, unsatisfactory limb. This is certainly true of the knee-joint.

Just how old a child should be before an operation for the radical cure of hernia is advisable, is not definitely settled, but since we have so perfected our technic we are operating at an earlier age each year. Personally I believe that an operation by an experienced surgeon is safer and better than a truss at any age. A few months ago I operated upon a patient of the late lamented Dr. Cutts for strangulated hernia, who was about two months old and who had been a seven months' baby. The patient weighed less than ten pounds, but notwith-

standing his age and size the radical operation was performed with an eminently satisfactory result. He took the chloroform beautifully, and had very little disturbance afterward.

DISCUSSION

Dr. A. E. Benjamin: There are a few things I would like to say in regard to operations upon persons, young and old. I am very much gratified with the position Dr. Moore has taken in operating on children, especially for hernia. It is my opinion that a hernia is very often congenital. Even when we meet it later in life, the canal is not closed and will not close. It has been my experience in operating on some of these cases, even after twelve years of age, that the canal was not closed, but no hernia had occurred previous to a few weeks of the operation.

Another point should be brought out: all complications should be corrected at the time if possible, and not subsequent to it. It has been my practice in all cases to put on a pneumonia-jacket as soon as the operation was over where I operated on aged people or on persons subject to inflammatory diseases of the lungs; to change their position frequently after the operation, and keep them as dry and warm as possible at the time of operation.

A good many patients sixty, seventy and seventy-five years of age, will stand a long operation if the kidneys are in good condition. I recall one case which Dr. Moore saw with me. It was a woman seventy-three years of age who had post-operative ventral hernia and an umbilical hernia, there being three openings in the abdominal wall. This operation required about three hours to complete properly, in order to dissect out all the cicatricial tissue and relieve the great number of adhesions present. She made a good recovery and showed no bad signs after the operation.

Dr. Archibald MacLaren: I hardly think we are ready for Dr. Moore's position in regard to the advisability of operation on children in all cases, but I certainly would agree with him on the other age limit,—the operation on older people,—because it is practically all nonsense to suppose that operation produces, *per se*, shock in old people. In my experience old people stand operation almost as well as persons of middle age.

Dr. Moore speaks of prostatics as presenting a class of cases on which we are more apt to operate because we find that these old prostatics present about as hopeless and as desperate a condition as far as operation goes as anything we may meet, except in emergency surgery. My experience, which is not very great, is that they stand the prostatic operation, either the suprapubic or through the perineum, very well indeed unless hemorrhage sets in. In the older operations where pinching and gouging forceps were used, the mortality was tremendous. When we come to operate on many prostatics, we find that they are almost like a uterus with a fibroid tumor in it. Under these circumstances we are in position to remove the prostatic hyper-

trophy with almost no shock at all. Not long ago I operated on an old man eighty-six years of age. The first day I saw him he had a temperature of 103°; he had double orchitis and sepsis in one testicle, and had just had a severe chill with pulse 130. He was passing water every five minutes, practically on the chamber, or trying to pass water constantly. He was in about as wretched a condition as you would want to see anyone, and practically as a last resort the operation was done to relieve him, and he made as complete a recovery as a young person could have made.

The only old prostatic that has lost control of his bladder, as a result of the operation, of late, was an old man whose prostate was so intimately adherent to the prostatic urethra that I took out the neck of the bladder with the prostate while making a suprapubic operation. I tried to dissect the neck out of the prostate, but I could not do it when I had the prostate in my hand. The only death which I have had in this class of cases in the past two years had two completely broken-down kidneys.

It is the old prostatic, whose urine is so loaded with albumin that you cannot tell what the condition of the kidneys is, on whom we usually operate. Provided the patient knows that the risk is considerable, and he is willing to take it, as they always are, then they should have the benefit of the operation. and we will find that the mortality is small, and especially so in the perineal operation. The perineal operation is decidedly the one to advise in many cases, although everything depends upon whether it can be best reached above or below. In closing I should like to have Dr. Moore state a little more definitely as to when, in his opinion, is the best time to operate on children for hernia.

Dr. F. A. Dunsmoor: Dr. Moore is so well known that it will not do any harm if we criticise this paper. That's why we are here—to get the opinion of any one interested. It is important to know, and we all should agree, that old people and young should not be denied the advantage of surgical work when such work is for their benefit. At a certain meeting where I spoke on a kindred topic after the writer of a paper that held that operations should not be given to old people, I said that old people liked to live as well as those of younger years, and after I went out he tripped me up in great shape by saying we did best by leaving them alone. The very fact of taking such a position shows that we are afraid of the extremes in age. The aged take chloroform very well, while in infancy we are very careful in administering the anesthetic, since we know that children have to be guarded very carefully, in order that they may not succumb to its influence. The same is true of the aged if they are subject to renal and cardiac diseases, as has been brought out in three or four cases reported at this meeting. One had been spoken of in a case of prostatectomy, where operation was made because of enlarged prostate, coincident with disease of kidneys. There might be one man found where operation would not be dangerous in middle age, but when he gets to seventy or eighty the time comes when he cannot pass water, when he has to use the catheter, when he has got cystitis and

nephritis, and then for any diseased condition an operation is a serious matter. If a man eighty or ninety years old falls out of a lumber-wagon, he is killed nine times out of ten, yet we see young people "loop the loop," receive a terrible fall, and get well in two or three days at the city hospital or somewhere else.

It probably comes to the mind of several in this room of an aged patient with a simple fracture of the femur where the patient died of it in a very short time at our hospital. There was no broken down condition of the heart or kidneys. One thing we find,—we do go down in the scale of power to resist any kind of trouble when we grow old. I do not say old people should be denied the surgical advantages that come to all, but we should take greater care of people when they arrive at seventy and beyond, since they do not stand shock nearly as well as younger people. We have got to protect them to a greater degree as far as loss of heat or blow is concerned, and it is not unreasonable to take the same precautions before an operation. It does show our good sense to say that as age goes on every one is more apprehensive as to the result. In my own family a capital operation has been done with perfect success on a man ninety years old, and it was because he was ninety years old that he was operated on,—that is a condition incidental to his age and nothing else.

Now, about children: The doctor makes one point I shall have to make exception to, and that is in regard to operation made for cleft palate so that the speech may be perfect. I spoke to two or three members of this society yesterday morning about this, when I was making an operation for cleft palate. There are many people who are well satisfied with themselves that they are speaking French. A thorough Frenchman knows they are far from it. Others think they are speaking perfect English who are Scandinavians or every day Dutchmen or Frenchmen. They think they are using the same intonation as the people whose native tongue it is. They do not know that they are speaking with foreign accent or tone. It is due to the early education of the child who has to use a certain set of muscles to attempt a tone, and if the normal vault is gone, he trains mind and voice with other muscles and effort, and uses the same method after the cleft is closed; and if he does not acquire a proper tone before he is two years old, he will never have a perfect accent, even if the cleft is restored later. Therefore, if this education is not undertaken in childhood and before they know how to produce a substitute for the correct tone, they never will learn to speak perfectly. After the operation the effort at tone is by the acquired method used before the cure, and is always faulty.

This comment is for only one part of the paper, but I wish to go on record as believing, and acting on the belief, that extremes of age, *per se,* require the greatest care, and are of themselves danger points in operative surgery.

Dr. A. J. Gillette: I think it is pretty well understood, certainly well demonstrated, that intracapsular fraction in the aged does not unite because it has not in many instances been properly treated. It has been shown by statistics that intracapsular fracture is not confined to the aged altogether, but does occur in the

young as well and union not obtained. I think one might possibly infer from the paper that hernia is not curable by the truss. I think if we can rely on statistics we shall find that is not true. A good many cases of hernia in infants and children are curable by properly applied trusses.

Dr. James W. Robertson: I would like to relate a case similar to one spoken of by Dr. Moore. I was called by a physician several months ago to see a man suffering with strangulated hernia, and this hernia was an old affair from which he had suffered for many years. It was a very poor case in which to administer an anesthetic. He had albumin in his urine, and other symptoms of chronic Bright's disease of the kidneys. I proposed to give the anesthetic if the doctor would operate, but he declined. I then said that if he would give the anesthetic I would operate, but he declined this proposition also. The man had to be operated on or die, so we compromised by using hypodermic injections of cocain. I made an incision nearly twelve inches long, cut out the sac, amputated a large piece of omentum, sewed up the incision, and had little or no shock. He made a rapid recovery, and was cured of his hernia.

A few days later an old lady came to my office with cancer of the neck, and she also had kidney trouble. I injected cocain into the skin and around the cancer, removed it, and closed up the wound, and she got up and walked out of the office as though she had never been operated on, and with no shock whatever.

I have been making operations under cacain for several years, have made over a hundred under cocain anesthesia and had no trouble whatever. These cases were reported several months ago through our local society. I think this matter of cocain anesthesia should be taken into consideration in operating upon old people. It does not seem to affect them badly at all.

Dr. J. E. Moore (Essayist): I am obliged to the gentlemen for their kindly discussion.

I think it was Dr. Benjamin who was speaking of additional care of the patient before and after operation. I did not anticipate doing away with the truss; I simply made the statement that I believe an operation at the hands of a competent surgeon is better than the truss. I have been each year reducing the age limit, and I would operate until these extreme cases are reached.

Dr. H. B. Sweetser: When would you do the radical operation for hernia?

Dr. Moore: Whenever the parents came to me saying they could not control the hernia. They do not know how to apply a truss. I do not believe it is often properly done. Many cases can be cured by the truss, but it is not often properly applied. I do not know how to cure a hernia with a truss, but I do know how to do radical operation for hernia; I know a child will get well by operating.

Dr. Sweetser: Is it true that congenital hernia is very seldom found in children twelve years of age? You take a child twelve years of age with a history of congenital hernia, does it have hernia?

Dr. Moore: Many times. Many times during an operation the hernia is found to be congenital when it was not so considered before operation. I have known of several children that had congenital hernia ten or twelve years and finally died from strangulated hernia.

Regarding what Dr. MacLaren said concerning hemorrhage in prostatectomy and shock; in the operation of prostatectomy where there is no hemorrhage there is no shock. They are cases of over fifty. By those who do the high operation it is believed to be much easier to control the hemorrhage than in the perineal operation; but I believe they are mistaken. You can leave the clamp on and control the hemorrhage.

Dr. Robertson in citing his extreme case shows he has the true surgical instinct, but he would have a larger per cent. of mortality by making the operation the rule. On the other hand we have as large a per cent, so he did the right thing.

Dr. Gillette spoke of the effect of age upon fracture of the neck of the femur. It is, I believe, generally understood that when fracture of the neck of the femur occurs it is the age which interferes with its union, but this is a mistake. We do not see so many in younger persons, but most cases of ununited fracture occur in middle life. I can say in answer to Dr. Gillette that hernia can be cured by the truss. I have seen a good many get well. If we would all take the trouble to learn to handle the truss as well as we learn how to perform the operation, we could do a great deal of good with the truss.

Dr. Dunsmoor need not offer an apology for criticism, because I should be disappointed to receive no criticism, since I would think my paper was not worth much if there was nothing to criticise. Accidents occur in anesthesia in young and old, but you all know my sentiments in regard to anesthesia. I use chloroform in ninety-five per cent of my cases. I have been using it for thirty years, and I have not had a death, and I did not have a case in which I was likely to have a death, because the point is I have always been careful in giving the anesthetic. The danger is imaginary more than real, but there is a real danger from the ignorance of the men who undertake to administer it. It is morally wrong,—it is almost criminally wrong to turn loose in a room, with a bottle of chloroform and a patient, a young man who has had no experience.

Dr. Dunn cites the well known fact that some people lie down and die after a simple fracture of the femur. They do it, too, because they are old. It is true, we are all afraid to operate upon old people and upon children, but I wish to bring out this fact, that we have been too much afraid, and that while there are certain dangers those dangers are not sufficient to deter us from operating upon patients in the extremes of age.

I did not quite understand the doctor when he spoke about cleft palate. I agree with the doctor that they do not get perfect speech after two years, but no matter at what age the operation is performed they do not speak well. You cannot promise the parent truthfully that you can perform the operation, and have the child talk as other children do. The best result I ever obtained was in a young man in this city on whom I operated when he was twelve qears old, and he speaks as perfectly as I

can, but is more deliberate than I am. It is simply a matter of training, and I have heard that you should teach them some foreign tongue. I had some excellent results in operating on Swede children. They had been taught the Swedish language at home, and they learned the English language better than they had spoken the Swedish language.

Dr. Robertson advocates the use of cocain in operations on old people, and cites some cases. I believe in the use of cocain when it is indicated or when a general anesthetic is contra-indicated. I do not believe he used it because they were old, but because there were contra-indications for another anesthetic. (Applause.)

TREATMENT OF FRACTURES AND INJURIES ABOUT THE ELBOW JOINT

A. J. GILLETTE, M. D., AND J. B. BRIMHALL, M. D.
St. Paul

It is obvious that a student of surgery must be extremely confused when he meets with a fracture or injury at or near the elbow-joint. He reads of the possibility of "a separation of the whole epiphysis," "separation involving part of diaphysis at one side," "supracondylar fractures," "T or Y fractures," "epiphyseal separation of the epitrochlea," "fracture of the internal condyle," "partial fracture of the capitellum," "fracture of the external epicondyle," or "fracture or epiphyseal separation of the external condyle."* Then he has the various dislocations to consider—dislocation backward of both ulna and radius, partial dislocation backward of ulna, dislocation forward of both ulna and radius, dislocation forward of ulna with fracture of olecranon, dislocation forward of radius, dislocation backward of radius; besides there are injuries to the nerves, of which the writers have seen two, which produced a flexion at the wrist, and so-called "claw-hand," which resulted either from the injury to the nerve at the time of the trauma, callus, or inflammatory adhesions. After one has mastered his case far enough to make a proper diagnosis, which is not easy, especially as a very large proportion of these cases occur in the young, even in very young children and from very slight injuries, he is still further embarrassed when he comes to treatment, and, first, by the position. It has been a very fertile

*Dr. F. J. Cotton, Annals of Surgery, January, 1902.

source of discussion whether to put the arm in a right-angle splint, or in extension, or a changing angle, or

Fig. 1.
Position and cast as applied by the authors for all fractures, injuries, and diseases of the elbow-joint.

acutely flexed, or a suspension of the flexed arm in a "Thomas wrist-halter," etc. After the surgeon has de-

cided this point, then comes the question of mobilization. Some advocate passive motion early—very early, even before ten days; some in ten days; some in two weeks, three weeks, four weeks, six weeks; and we who have thirty cases to report advise no passive motion at all.

Fig. 2.
Not one of the cases here reported.
Shows the condition of an arm dressed at a right angle for a fracture of the lower end of the humerus.
I.—A fragment of the external condyle displaced inward to the front of the elbow, and locking the joint at the angle shown.
II.—Location of the olecranon fossa, which seems to be obliterated by callus.

Our first case was seen in the country, where we found a boy with the following history: May 2, 1891, Harry Robinson, 10 years old, was thrown from a horse,

and sustained a compound comminuted fracture of the lower end of the left humerus, described as a T fracture, in which both external and internal condyles are separated from the shaft and also from each other. The end of the shaft protruded through the wound in the skin, and the joint was much swollen and discolored.

From our impressions of the treatment of injuries and fractures about the elbow-joint our desire was to dress this arm in a flexed position; and although he was profoundly under an anesthetic the moment we attempted to flex the arm the fragments would be displaced, but every time we extended it, and especially when we made complete extension and considerable traction, all of the fractured fragments were brought into their normal position. We were therefore obliged, much against our will, to dress the arm in this way, using plaster-of-Paris, and extending it from the fingers to the arm-pit (Fig. 1), with the fore-arm fully supinated and traction continued until the plaster was thoroughly hardened. Then, by cutting windows in the plaster to dress the wound, it was left in this position for five weeks. When this cast was removed for inspection the arm was found to be in such excellent condition that the same cast was re-applied for two weeks longer, and an absolutely perfect arm was the result, and is the result to-day; and we do not believe, aside from the scars, that a surgeon would be able to tell which arm had been fractured.

From that time to the present we have treated every form of fracture—dislocation, injury, even tuberculous joints—in this position, and we have met with such uniform success that we believe we are justified in reporting it here, and in advocating it. We have not reported here anything but fractures and dislocations, because the term "injury" is vague and gives no exact lesion; and, necessarily, a slight injury, and therefore a good result, would have very little weight as to the efficiency of this form of treatment. In the tuberculous joints that we have treated in this way, results are always considered relatively, for it is not easy to follow up the cases, and get an exact report of the present condition.

Nor will we discuss in this paper the position of the parts, or the muscular action on the fragments in the various fractures, as this ground has been thrashed over again and again with no conclusions; but we present these

cases as clinical facts to justify the position which we advocate, namely, that of full extension and supination with traction and no passive motion or massage.

CASES

1. May 2, 1891.—Harry Robinson, 10 years old, was thrown from a horse, and sustained a compound comminuted fracture of lower end of left humerus, described as a T fracture, in which both external and internal condyles are separated from the shaft and from each other. The end of the shaft protruded through the wound in the skin, and the joint was much swollen and discolored.

Treatment: anesthetized, reduced as before described and dressed in complete extension, with plaster cast from axilla to fingers with the forearm fully supinated, and strong traction continued until the plaster was thoroughly hardened. This cast was left on for five weeks, then removed for inspection. The condition was found to be so satisfactory that the same cast was reapplied for another two weeks and an absolutely perfect arm was the result.

2. April 27, 1892.—Willie Thurston, 4 years old, fell from a ladder sustaining a fracture of lower end of left humerus; external condyle separated.

Treatment: anesthetized, reduced, and plaster cast applied as in previous case, with the forearm fully extended for five weeks. The cast was then removed and a roller bandage applied. No passive motion was employed but the child was encouraged to use the arm. When seen one week later the result was found to be perfect.

3. July 2, 1892.—C. W. Hughes, adult, sustained a fracture through inner condyle of right humerus.

Treatment: anesthetized, reduced, and a plaster cast applied with forearm extended for six weeks; active motion for less than one week, when motion in the joint was found to be perfect.

4. Sept. 16, 1892.—Willie Coleman, 10 years old, fell from balcony on second floor, and fractured both bones of left forearm close to elbow-joint.

Treatment: anesthetized, reduced, and plaster cast applied with the forearm fully extended and supinated for four weeks. The cast was then removed, a roller bandage applied, and the boy was encouraged to use the arm. The result was found to be perfect when the arm was examined one week later. At the end of another week the boy met with an accident on the street which resulted in fracturing the same arm above the elbow.

5. October 29, 1892.—Same boy, supracondylar fracture of left humerus.

Treatment: anesthetized, reduced, and a plaster cast applied with the forearm fully extended for six weeks. Active motion for another week brought a perfect result.

6. Feb. 23, 1893.—Herbert Cram, 13 years old, comminuted fracture of lower end of left humerus, described as a T fracture

in which both external and internal condyles were separated from the shaft and also from each other.

Treatment: anesthetized, reduced, and a plaster cast applied with the forearm fully extended for eight weeks. Motion at this time was absolutely perfect.

Note.—The cast in this case was undisturbed for eight weeks, and the result being such perfect motion, it tends to corroborate a previously advanced theory that long immobilization of fractures near a joint is very desirable. In this case the outline of the joint was normal when the cast was removed, and there was no perceptible callus at the seat of fracture. The redundant callus had evidently been absorbed, and in no way interfered with motion of the joint.

7. July 8, 1893.—Frank Glennon, 11 years old, fracture near elbow-joint. Exact condition not noted in our records.

Treatment: anesthetized, reduced, and a plaster cast applied with the forearm extended for six weeks. Motion was practically perfect when cast was removed. Never saw this patient afterwards.

8. July 12, 1894.—Harry Bock, 14 years old, fell from a tree, sustaining a complete backward dislocation of both radius and ulna. Joint was very much swollen, and the skin much discolored from extravasation of blood, showing considerable laceration of soft parts at elbow.

Treatment: anesthetized, reduced, and a plaster cast applied with the forearm extended for four weeks. Result was then perfect.

9. July 14, 1894.—Dolly Helmle, 3 years old, fell from a table, and sustained a fracture of radius and ulna near elbow.

Treatment: anesthetized, reduced, and a plaster cast applied with the forearm extended and supinated for four weeks. Result was then perfect.

10. Nov. 28, 1894.—Clarence Holmes, 11 years old, by a fall fractured radius and ulna near elbow.

Treatment: anesthetized, reduced, and a plaster cast applied with the forearm extended and supinated for four weeks. Result perfect.

11. April 6, 1895.—Arthur Turner, 13 years old, by falling down stairs fractured the lower end of left humerus, separating the external condyle.

Treatment: anesthetized, reduced, and a plaster cast applied with the forearm fully extended for six weeks. Result perfect.

12. Sept. 5, 1896.—Same boy, sustained a fracture through neck of right radius.

Treatment: anesthetized, reduced, and a plaster cast applied with the forearm fully supinated and extended for four weeks. Result perfect.

13. Aug. 30, 1897.—Grace Schulz, 4 years old, by a fall fractured the left ulna near the elbow.

Treatment: anesthetized, reduced, and a plaster cast applied with the forearm fully supinated and extended for four weeks. Result perfect.

14. Sept. 13, 1897.—Willie Jacobson, 12 years old, fell from a window of second story sustaining a T fracture of lower end of humerus, also a complete backward dislocation of both ulna and radius at the elbow; the joint was very much swollen and discolored.

Treatment: anesthetized, reduced, and a plaster cast applied with the forearm extended for eight weeks. Result perfect.

15. April 7, 1898.—Arthur Cohen, 7 years old, fell down one flight of stairs, sustaining an oblique fracture of lower end of humerus separating the internal condyle and backward dislocation of ulna at the elbow; marked deformity and swelling of the joint.

Treatment: anesthetized, reduced, and a plaster cast applied with forearm extended for seven weeks. Result perfect.

16. Sept. 18, 1898.—Louise Hyle, 7 years old, by a fall fractured left humerus through external condyle.

Treatment: anesthetized, reduced, and a plaster cast applied with the forearm fully extended for six weeks. Result perfect.

17. April 20, 1898.—Baby Herdlicka, 1 year old, fell down stairs and fractured lower end of right humerus through the condyles. This was in all probability a separation of the whole epiphysis.

Treatment: anesthetized, reduced, and a plaster cast applied with the forearm fully extended for five weeks. Result perfect.

18. Nov. 11, 1897.—Assyrian boy, 14 years old, by a fall sustained an oblique fracture through lower end of humerus, separating the external condyle.

Treatment: anesthetized, reduced, and a plaster cast applied with forearm extended for six weeks. Result perfect.

19. Dec. 4, 1898.—Assyrian boy, 10 years old, fractured radius and ulna near elbow-joint.

Treatment: anesthetized, reduced, and a plaster cast applied with the forearm extended for five weeks. Result perfect.

20. March 14, 1898.—Nic Miller, adult, transverse fracture of olecranon.

Treatment: plaster cast, forearm extended.

This man removed the cast himself before the end of two weeks and reported that his arm was all right. The joint was, however, still swollen and we have received no report of the case since. In this case an anesthetic was not used.

21. Aug. 2, 1896.—James Duffy, 11 years old, fell from a turning-pole and sustained a comminuted fracture of lower end of left humerus. This injury consisted of a supracondylar fracture and an epiphyseal separation of the internal epicondyle. The joint was very much swollen.

Treatment: anesthetized, reduced, and a plaster cast applied with the forearm extended for four weeks at which time the boy's mother insisted on having the cast removed. Motion was then limited to 45° flexion, and after using the arm for a few days with no dressing except a roller bandage the boy returned to the office with the joint swollen, and motion painful and less free than when the cast was removed.

The mother consented then to the application of another cast, which was worn for two weeks. Motion then was practically what it had been when the first cast was removed and passive motion was begun. The arm was occasionally flexed, by using force, to a right angle, which caused the boy much pain, and for a few days following such treatment the motion was less free. After several weeks' treatment in this way we concluded that it was decidedly of no benefit to the joint, and left the case to nature. At the present time all movements at the elbow-joint are free, with the exception of flexion, which is only a trifle less than to a right angle. For all working purposes this is practically a perfect arm, much more so than if fixed at a right angle.

22. Oct. 20, 1900.—Bessie Lilly, 9 years old, fell from a fence and sustained a comminuted fracture of lower end of right humerus, both condyles being separated from each other and from the shaft of the humerus; joint very much swollen.

Treatment: anesthetized, reduced, and a plaster cast applied with the forearm extended for six weeks. Motion was then found to be limited to 45° flexion. Passive motion was employed for two weeks with the result of increased swelling and a lessened degree of flexion. A fixed dressing was then applied for two weeks with the arm flexed as much as it could be. After the removal of this dressing the treatment was left to nature, and at the present time all movements at the elbow joint are free, except that flexion is limited to a little less than a right angle. The arm is a useful one, there being practically nothing disabling about it, as she uses this arm on all occasions in preference to the other.

23, 24, 25, 26.—During the summer of 1896 there had been a circus in town, and some very alluring acrobatic feats were exhibited. As a result we were called upon during the ten days following this circus to treat four boys who had sustained fractures of the lower end of the humerus, all being caused by falling in an attempt to duplicate the circus performance. These cases were treated as patients of the city and county, and we have not the definite records which are noted in the other cases. However, the same treatment was used in all,—anesthetized, reduced, a plaster cast applied with the forearm extended from six to seven weeks, and the results were all perfect.

27. Suppurating case, Oct. 1898.—Boy, 13 years old, charity case, came under treatment one week after injury to elbow, which consisted of a compound comminuted fracture of condyles of left humerus described as a T fracture. The joint was very much swollen, suppurating freely, and the tissues infiltrated with pus.

Treatment: irrigation, antiseptic dressing and plaster cast applied with forearm extended for five weeks. Motion then was free in the elbow-joint, but flexion was limited to 45°. Case never seen afterwards.

28. Reported by Dr. J. T. Christison. Oct. 15, 1901.—Thompson, boy 9 years old, oblique fracture of lower end of humerus; internal condyle separated; plaster cast applied in

extension, and removed at the end of five weeks. The day following removal of cast the boy fell from a chair on which he was standing, the arm going down between the wall and radiator, producing a second separation of fragments. A similar dressing was reapplied, and removed seven weeks later. Some stiffness of joint. Result now perfect motion.

29. Oct. 12, 1900.—George Fealland, aged 8 years, sustained a compound fracture of the lower end of the humerus "supracondyloid." The wound was very slight. It was thoroughly cleansed, and dressed antiseptically. The child was anesthetized, arm fully extended, plaster cast applied from the fingers to the arm-pit, and the dressing was not removed for four weeks. Union seemed to be complete, but the cast was readjusted. No attempt at motion was made at the joint, and the child wore the cast four weeks longer. Result perfect.

30. Dec. 30, 1901.—Lammers, aged 10 years. Fracture of the external condyle. Did not consult a physician for one week after the injury. The swelling about the joint was considerable, and was very tender. This child was not given an anesthetic, as it was easy to demonstarte a fracture of the external condyle, since he was very thin, and gradual extension and traction relieved the pain as it relieved the reflex muscular spasm. This cast was removed at the end of two weeks, as we were anxious about the relation of the fragments, for in this case we attempted treatment without an anesthetic, but no motion was made at this time, and the straight position was continued for eight weeks, and then the child began to use the arm, and is now perfect in every respect.

The results obtained in cases Nos. 21 and 22, while being imperfect, are not really bad results as to usefulness. Physical examination of these cases at the present time shows in each that the internal condyle was not properly replaced at the time of dressing, for in each the epicondyle can be felt displaced forward and outward, and firmly ossified to the anterior surface of the lower end of the humerus. This was corroborated by the fluoroscope, and when flexing the arm this bony protuberance could plainly be seen to lock further flexion. The removal of these displaced condyles will undoubtedly be followed by much better flexion.

CONCLUSIONS

First, this is a dressing of easy application. Second, in most instances it is the most comfortable for the patient. Third, the circulation is less interferred with. Fourth, it is shown in our own cases and in those of others that the fracture of the external or internal condyle is the most frequent fracture, and that the muscles arising from these condyles have a tendency to draw the

fractured portion toward the median line and in front of the elbow-joint, thus blocking flexion, and being easily held in position with the straight splint (Fig. 2). Fifth, if there is a great deal of callus there is no danger of the

Fig. 3.
Not one of the cases here reported.
Photograph of arm, as shown by the X-ray, flexed to the limit, dressed at a right angle, and showing a not infrequent result.

olecranon fossa becoming filled with it, thus blocking extension, and the olecranon process furnishes an admirable splint to keep in place the fragments when the con-

dyles are fractured. Sixth, the traction which is made with extension and supination keeps the normal bony surfaces, with the exception of the epitrochlear surface

Fig. 4.
Not one of the cases here reported.
Photograph of arm, as shown by the X-ray, flexed to the limit, dressed at a right angle, and showing a not infrequent result.

and the olecranon, the farthest apart. Seventh, we have found that in fractures near a joint no motion whatever should be permitted until the fractures are thoroughly united, for the irritation naturally causes an increased amount of callus, which interferes with motion. Eighth, active motion is much better than passive, for in passive motion force is used and the joint is continually irritated, which keeps up a certain amount of inflammation and tenderness, and the patient will therefore of himself refuse to use the elbow. Ninth, it is the tendency of all joints when injured or inflamed from any cause to flex; therefore if an arm is placed in a flexed position for repair, when it is restored it is necessary for some active measures to be taken in order to extend it, which is not necessary when the arm is fully extended. Tenth, ankylosis is rare from any cause. It is less frequent from injuries, and we have not seen one case of ankylosis of the elbow-joint from injury, fracture, or dislocation in some twenty cases which were considered bad results from fractures treated in a flexed position, and in some which were not diagnosed or treated at all. Eleventh, an anesthetic should always be used in reducing these fractures, for they result from such slight causes in children that they might easily be overlooked; besides, under an anesthetic it is much easier to reduce the deformity, and anesthesia should be continued until the plaster is thoroughly hardened. Twelfth, this position gives the very best results, but it must be remembered that in order to get these results the fracture must be perfectly reduced, which was not the case in the only two imperfect results which we have treated by full extension and supination.

DISCUSSION

Dr. W. E. Rockford: I have had considerable experience in treating fractures, and am very glad I waited to hear Dr. Gillette's paper. It has been my practice to treat fractures of the elbow-joint in the flexed position, using passive motion, and, as a rule, I have obtained good results, though we know it is sometimes difficult to secure satisfactory results with this class of fractures. If Dr. Gillette can show such excellent recoveries from the method he has adopted, in putting the arm in the straight position and avoiding passive motion, I think it is an improvement over the older methods. We do not like to tell a patient that he may expect a bad result, though it is often advisable in this kind of injury.

It is always well to remember in using plaster-of-Paris in the

treatment of this fracture, that the patient should be kept under the anesthetic until the plaster is sufficiently hardened.

Dr. J. E. Moore: Five or six years ago in the Hennepin County Medical Society I advocated the extended position in treating fracture of the elbow, and they jumped all over me. I was very well satisfied with the discussion. Those men who differed with me did it theoretically; they had never tried it. I also said the less motion given to these cases the better.. It has been my practice for many years to let the joint severely alone until I had removed the dressing, and then allow the child to use the arm, which is just the point Dr. Gillette makes.

I have noticed within the past few months that I was given credit in medical literature for using open arthrotomy, by a New York writer who claims I was the first to advocate it in this country. I believe if we once reduce the fracture it can be held by the method suggested by Dr. Gillette; we can hold it there as we originally did with chromicized catgut.

Dr. R. C. Dugan: I wish to thank Dr. Gillette for this paper. I am glad it has been presented to this Section by a man whose opinion carries some weight. However, I am a little disappointed that he did not discuss the causes for bad results in the cases dressed in the flexed position. It has always seemed to me from an anatomical standpoint that the right angle position is most favorable for producing the most deformity. With the forearm flexors pulling directly forward on the broken inner condyle, and the triceps pulling upward on the ulna, the articular surface of which is practically all in this same fragment, thus pulling it upward and forward, the very position in which we always find it in these fractures.

Scudder advises dressing in the extreme flexed position, but this is still worse, and is simply carrying the same bad principle still farther than in the right-angle dressing.

PLASTER-OF-PARIS CASTS

C. A. Kelsey, M. D.
Minneapolis

No part of the work of the general practitioner gives so much anxiety as fractures. Every case is an individual case. Splints must be accurately fitted to each fracture, the object being to retain fragments in place, and the result is wholly dependent upon the accomplishment of this.

What dressing shall be used? In my experience of twenty-seven years I have found nothing so satisfactory as the plaster-of-Paris bandage. It is easily adjusted to any part of the body by moulding it carefully to the

irregularities of the part. It can be used for long splints of any shape. When properly applied it holds the fragments in place by controlling contractions of muscles, and also affords an unyielding support.

The cast should extend up the limb above the muscles involved in the injury, so as to control contractions. It should be split open before the surgeon leaves the house, so as to avoid any undue pressure on blood-vessels and nerves, by the swelling of the part.

A narrow, thin piece of tin put under the cast to cut down upon, greatly facilitates the opening of the cast. The tin is removed as soon as the cast is opened. A light bandage can be put around, and can be loosened as the limb swells, and tightened as the swelling subsides or the muscles shrink from disuse.

It is not best to put absorbent cotton or other packing under the cast, and it should not be done for fear of a partial displacement of fragments. If the cast is perfectly fitted it will produce but little discomfort.

The writer puts the plaster cast next to the skin. Three children with fractures of the arm are now wearing casts thus applied without complaint. Opening the cast when it is applied not only provides for the enlargement and shrinking of the limb, but enables examinations of the parts by springing the cast sufficiently to remove and replace it.

Good results can be secured in fractures of the elbow-joint where passive motion is desired, by splitting the lower part of the cast, thus permitting passive movements without disturbing the support of the fragments involving the joint. The writer believes from his limited experience that it is a valuable aid in fractures of the clavicle. By placing the patient on his back the fragments can be adjusted, and a perfectly fitting cast put on, and can be held in place by adhesive straps.

In fractures of the nasal bones by packing the nares well and applying a cast over the nose, good results can be obtained. In fractures of the lower maxillary it makes a model dressing. If the last strip of bandage be allowed to extend beyond the cast, dividing each end into two strips, it makes a convenient way to hold the cast in place by tying over the head.

In compound fractures long splints can be so adjust-

ed as to firmly hold fragments in place, and leave the wound open for the purpose of dressings.

In fractures of the femur, within the capsule, when patients are not too fleshy, it can be used to good advantage. It holds the parts so rigidly that pain is relieved, and the patient can be up around the house and yard, while other kinds of splints confine him to the bed.

In a recent case the pain was intense before the cast was applied. When put on the relief was so great that the patient could not believe there was a fracture. The shortening of the limb, however, gave evidence of a complete fracture. This shortening is made greater than necessary by too early removal of the cast.

With a supply of plaster-of-Paris bandages of assorted sizes, one is prepared to care for fractures of any nature upon short notice.

To avoid undue pain or harm to the parts from pressure caused by swelling, always open the cast its entire length, and to the skin, before leaving the patient. This will enable the surgeon to examine the parts at any time.

Adjust the cast perfectly to the parts without padding and maintain the perfect fit by roller bandage, allowing the cast to open as the limb swells, and to close or lap by as the swelling subsides or the muscles waste.

Maintain daily passive movements of joints by suitable slits in the cast.

Section of Hygine, Medical Education and Public Medicine

W. S. FULLERTON, CHAIRMAN.

The Chairman: There is only one thing to which I desire to call the attention of the Society, and that is an article in the American Medicine under date of May 31. The idea embodied there is one I would like to see this society take up. In view of the misunderstanding on the part of the public as to the real work of the medical profession it would be advantageous to appoint one evening out of the three, or whatever number the Society may be in session, as a meeting for the instruction of the public, and have certain men read papers, give addresses and discuss subjects which would bring to the notice of the public the real objects of the medical profession. Many of you possibly have seen that idea in operation, but this is a suggestion I think the Society could take hold of with profit.

ORGANIZATION OF THE MEDICAL PROFESSION

ARTHUR SWEENEY, M. D.
St. Paul

The medical profession has a power for good in the community which is not equalled by that of the clergy or the legal fraternity. Its power is, however, not exerted. It is dissipated by lack of concerted effort, and wasted by internal difference of opinion. We are all conscious of this power. We talk about it at our medical meetings, and grow eloquent over it at our banquets. This is, however, mere boasting. We deceive ourselves as to our influence, but we do not deceive those who are opposed to us. The quack does not fear us, and the medical ignoramus holds us in contempt. They know that they can practice in safety, because no one physician will take upon

himself the burden of prosecuting them for violation of the law. They are conscious that this power of the profession is *in posse* rather than *in esse*. It is rendered futile by shortsightedness of the individual members of the medical profession, and their failure to act and work together for any purpose. Each member of the profession stands aside for his fellow to do the disagreeable work of shaping things right, and as a consequence things are never set right. As a profession we hate quacks, we frown on advertising, we abominate Christian Science and kindred delusions, and we do not love our brethren of the Homeopathic, Eclectic and Osteopathic schools.

We are one in our antipathies, but there our unanimity ceases. We have no real unity of effort, and without that our prejudices only serve to belittle us and expose us to the ridicule of the public. Our prosecutions of the illegal practitioner are so ill directed and so tinged with personal feeling as to take on the appearance in the public eye of petty persecution.

If we want an example of the utility of concerted effort, we may find it in the Osteopathic ranks. At the two recent sessions of the legislature, bills were introduced legalizing Osteopathy. The bills were designed to license a class of irresponsible men, and to legalize a form of practice which was entirely new. There were not more than fifty Osteopaths in the state at the time the first bill was introduced. The legislators were wholly ignorant of the nature of the treatment. There seemed to be nothing more hopeless than the attempt to pass such a measure. It was apparently hardly worth while to oppose the bill, as it seemed likely to die from inanition. A week before the measure was to come up in committee a few of us looked the matter up, and we were shocked to find that a large majority of the committee was in favor of the bill, that the Osteopaths had the lower house solid and were making rapid progress in the senate. It required the strongest personal effort on the part of the legislative committee, two public hearings, and all the influence that could be summoned by the medical profession of the state to defeat the bill, or rather to return it to its pigeon hole.

How was it that the legislature was hypnotized into approval of such a measure? What was the influence that surrounded the bill with many defenders and champions in the house and senate? The answer is not difficult. Be-

hind the Osteopathic bill were fifty earnest, enthusiastic, and tireless men, organized for the purpose of securing recognition for their school. Opposed to the bill were sixteen hundred apathetic, indifferent, and unorganized regular physicians. On the one hand were enthusiasm and organization; on the other hand, complacency and disunion. The hardest fight, the most persistent attack on medical legislation in this state since 1887, was nearly won by a handful of united quacks over the haphazard and fitful resistance of a host of regular physicians. If the Osteopathic bill had been passed there would have been a loud clamor from the ranks of the regulars against the discrimination of the legislature in favor of the irregulars. We have seen enough of the Osteopathic manner of fighting to admire their tactics, and we can justly reproach ourselves for being found unprepared for the surprise party they gave us.

These things should stimulate us into a consideration of where we stand. We have a few sins of commission to answer for, but our sins of omission are mountain high. What use have we made in the past of the most potent educational influence and opportunity possessed by any body of men except possibly the clergy? Why is it that after a hundred years of practice among the people, the educated and the ignorant alike, our influence is so transient, so feeble, that the most absurd fad, the most harebrained delusion, the most fantastic fraud that comes along, spreads its pernicious poison as rapidly among the people as fire in tow? Where is the educational power over the people of which we boast in our addresses, and applaud in our after-dinner speeches? How loyal are the people to us, because of our single-mindedness and devotion to them in their sickness and affliction? How much weight has the opinion of the medical man in a public matter, and with what smiling indifference do not those who make the laws listen to his protests? There is something wrong here. There is manifestly some foolish want of thought in this ridiculous situation. When a small band of deluded faddists, a lot of enthusiastic antivaccinationists, a host of crack-brained disciples of Mary Baker Eddy, overshadow in importance and influence a body of trained, educated, devoted men, whose work has been among the people and for their benefit, the former must possess some peculiar influence

or use some weapon which is unemployed by the latter.

There are doubtless many things to which this state of affairs may be ascribed. One cause, however, stands out as first in importance. It is lack of organization. There is no unity in plan or in action in the medical profession in this state, nor in most others, to speak truthfully. Each man in the profession cherishes an ideal of his own. His ambition and his love for the profession is too often limited to those things which contribute most to his personal pleasure or profit. He wants good laws, and grumbles if he does not have them—and takes it out in kicking. He wants more rigid enforcement of the medical law, and makes no effort to obtain it. He desires to see sanatoria built by the state, but confines himself to wishing for them. His dreams will never come true. If he would but work, what could he not accomplish?

There is nothing utopian in the dreams of the medical men. Their wishes are essentially practical and capable of realization. Their aims are seldom selfish. The altruistic principle has a large place in the heart of the medical profession. We are working for others, and we seek only those things that promote public health and the general welfare. We ask for protection of the public from the ignorance and incompetence of pretenders in medicine; we want inspection of meat and other food products; we want control and quarantine of contagious diseases, we want medical schools of the highest grade only; we want sources of pure water-supply; we want sanatoria for consumptives, we want public parks for the preservation of health in the community. Is there any self-seeking in these demands? Yet with what difficulty is anything accomplished? How many times have the legislatures refused to listen to our requests? Much has been accomplished, but more remains to be done.

There is only one way to accomplish it. It is by organized effort only that we can succeed. The union of the medical profession is an absolute necessity. Until a scheme of organization is adopted which will crystallize the sentiments and aspirations of the profession, we shall fail as we have done before. This union lacking, in what way can we ascertain the sentiment of the profession, and who can be the mouthpiece of that sentiment? Who is authorized to speak for any one other than him-

self under the present chaotic system of things? The state medical society speaks for only 300 or 400 out of nearly 2,000 physicians in the state. The district societies have a membership scattered over a large number of counties, the membership from each county being very small. The county societies in the larger cities are influential, but such is not the case in most counties. In many counties there is no society organization whatever. It is a lamentable truth that in this country seventy per cent of the physicians belong to no medical society. It is only through medical societies that any coherent plan of action can be formulated by which our desires can be accomplished. It is only when in all the counties of the state there shall be societies organized which shall comprise in their membership the bulk of resident physicians, that a beginning of such organization can be made. When these societies are thoroughly subsidiary to the state society, when the state society shall comprise an overwhelming majority of the practitioners of the state, then only can a medium be obtained through which the sentiment and desires of the profession can be expressed.

There is a crying need of such organization, and with it there is no reward that may not crown our effort.

DISCUSSION

Dr. H. M. Bracken: I certainly think such a paper as this should not pass without discussion. It is a fact that there are many things which the medical profession needs, and still is not willing to work for, and there is no way by which such can be obtained, except by taking hold of the matter as a body and presenting the case to legislators in a way to command their attention and assistance.

Dr. H. A. Tomlinson: There is one point in Dr. Sweeney's paper that might be dwelt upon with advantage, because it reveals a characteristic in human nature which is present in us all; and that is our indifference to the welfare of the profession to which we belong, unless we are assured in advance of some material benefit to ourselves. The principal difficulty in the way of our appreciating what might be gained from such an organization as is now to be attempted under the auspices of the American Medical Association is our failure to appreciate the indirect good. In talking to medical men throughout the state; when I have urged them to attend the meetings of the state medical society, they have answered, "What good is it going to do me?" Meaning of course, what material advantage would they gain. The idea seems to be that they are doing the society a favor in attending, and not themselves. They fail to see that the good must come alike to all, but indirectly after the organization is effected. The organization must come first, and each man must be willing to make

a definite personal sacrifice of time and interest; realizing that while his contribution may be only a little, the accumulation of all of the interest will be sufficient to establish the society on a permanent basis, and secure the combined interests of the profession, and the separate interests of its individual members, the consideration to which they are entitled. But if the physician waits until the organization is accomplished before he comes into the society, if he waits for the direct advantage to himself to become apparent before he takes any interest in the organization of the profession, the proper habilitation of the profession is bound to fail.

The history of all professions and occupations has been that they have been successful, and received the consideration to which they were entitled only in proportion as they were organized, and the ratio of success has always been in proportion to the completeness of the organization.

Another aspect of this question which is equally important, and which was dwelt upon by the president of the Society in his address this morning, is the effect of the peculiar conditions under which the general practitioner lives. The isolation which results from his active professional life, and the nature of his environment, make him almost necessarily self dependent; so that he comes to feel that to take the time necessary to go outside of his own field and associate with his fellow practitioners, is to make a sacrifice that is not warranted. However if he will but go regularly to the meetings of the state society, for a few years, the habit will grow upon him. He will form associations which are extremely pleasant, will find that his brother practitioners are men worth cultivating, and that each meeting he not only learns something that profits him in his work, but also comes to appreciate the pleasure and advantage of knowing and being known among his fellows.

Dr. J. W. Andrews: I have an optimistic view of the future so far as the medical profession of Minnesota is concerned. The more I learn of the proposed federation of medical societies the more I am convinced that the time is not far distant when the medical profession of Minnesota, as well as of other states, will be so organized that we can accomplish a great deal for the profession. I would only emphasize what the writer says in his paper, that the first requisite is organization. Any one who has had anything to do with politics knows the value of organization, and how disastrous the lack of it is; and in this work that the medical profession is trying to do now I believe we are going to reap our reward in the future.

Dr. E. J. Brown: The paper raises the question why the public has no respect for the opinion of the medical profession. I think it is sufficiently obvious why they have no respect for us, and it is because we have no very great respect for ourselves. A circumstance occurred within the past few weeks which may be used as an illustration. In a certain county medical society, not a thousand miles from Minneapolis, the names of certain practitioners were brought before the society for admission. They were proposed in regular order by the censors, and it came to a vote. Three of the men proposed, and placed before the society for admission and voted upon by the board of censors, were men

who had been guilty of grossly unprofessional conduct. One of them was well known to have been guilty of commercialism by paying commissions, and yet, in spite of very vigorous opposition on the part of a few members, that man, the most objectionable of the three, received eleven votes in favor of his admission to the society,—nearly one-third of the members present. That is simply an illustration of the conditions that hurt our medical societies.

I have been a member of this medical society for about twenty years, and in that time, so far as I know, only one man has been expelled from the society, and that was on account of newspaper advertising. If the medical profession would show more respect for its own membership, if they would show the public that membership in the society means something, the society would probably gain much in public esteem.

Dr. J. W. Robertson: I can see no reason why this organization of the state medical society cannot be accomplished, neither can I see any reason why we should not have at least sixteen or seventeen hundred members in the state medical society. We have had a little experience in organizing a medical society in our part of the country. For many years we had no county society, no district society or anything of the kind, but four years ago last night we had a meeting of the medical profession of Meeker and Kandiyohi counties and we organized a little society known as the Crow River Valley Medical Society that has grown until now we have about fifty-six members in the society. If we can by a little united effort organize a society of the profession in two or three counties of fifty to sixty members, I see no reason why in the whole state of Minnesota we cannot organize a society of fifteen hundred to two thousand members. The trouble is we do not try to get members into the state medical society. I have met men to-day that have been members of the profession for many years that have never been asked to come down here. We ask members to join our society and we rarely fail to get them. We even took in four members last night at our meeting at the Soldier's Home, and if we can take in four members in our society at every meeting I believe the same could be done for a state society.

Dr. Arthur Sweeney (Essayist): I only wish to emphasize one point, that is that our profession differs from a trade only in the fact that it is unselfish; that we are not working for ourselves but for other people. We go about our work with the desire to destroy disease and make the community healthy. We wish to see sanitation established on scientific principles; we wish to conserve the health of the community as far as we can. There is only one obstacle in the way of making our profession ideal, the necessity of working for a living. We are not all millionaires, and if it were not that we have to work to live, ours would be an altruistic profession. If the profession would only realize that all the legislation that has been enacted, and that all the legislation that is desirable, is for their benefit they would take more personal interest in legislation than they do at the present time. When a bill comes up before the legislature for a sanitarium for consumptives we sit back and say it is a good thing, but we never think to push it along. We are too busy to write a letter to our

legislator, the representative of our district, and we do nothing except to silently approve of the general scheme. This is about as valuable a consideration as it was to the young man who winked at his girl in the dark; he knew what he was doing but she didn't. If the highest good of the medical profession is of any consequence at all we must teach our legislators, we must teach the man who represents us and influence him to stand by everything that is intended to raise the standard of the profession and to benefit the community. If a man wants some little two-cent bill put through the legislature the first thing he does he goes to see his representative. If we have some beneficial scheme for the promotion of the public health we calmly sit by and the legislature never hears from us. We ought to wake up to the fact that we are citizens, that we have interest in the members of the legislature and should influence those members to vote for the measure we are advocating.

THE RECIPROCAL RELATIONS BETWEEN PHYSICIANS AND MEDICAL JOURNALS.

BURNSIDE FOSTER, M. D.
St. Paul

Probably no one who has given thought to the subject will deny that there are too many medical journals published in the United States; and yet it is not likely that any two persons would agree as to which ones should be stricken from the list as superfluous and unnecessary. I propose to discuss, briefly, the subject of medical journalism, the relation of the medical journal to the practitioner of medicine, and the duty which, it seems to me, the physician owes to medical journals.

There is no physician in active practice, no matter whether he lives in a large city or practices alone in some isolated community, who does not need to keep in touch with the world of medicine, and he can only do this by means of medical journals. The weekly journal is the most popular and is the most valuable, and there are few physicians who cannot afford two weekly journals. The Journal of the American Medical Association should be received by every physician in America; as a matter of fact it is received by about one-tenth of them. The cost of this journal should not be charged to the

medical journal expense account, since it seems to me that five dollars a year is little enough to pay for the privilege of membership in the American Medical Association, and the journal is sent to every member who pays his annual dues. In the Journal of the American Medican Association, the physician not only finds an account of all that takes place at the annual meetings, with the full text of all the papers that are read there,—some good; some, to be sure, bad; and some of indifferent merit,—but he finds the reports of numerous important medical societies which meet at various times and in various places during the year, a considerable number of important articles written especially for the journal, much good editorial discussion of the burning medical questions of the day, and an excellent digest of the current medical literature of the world, as well as interesting medical news items from different parts of the country, reviews of recently published medical books, and correspondence from different sources concerning medical questions of interest, the whole being completely and exhaustively indexed at the end of each volume. All this the physician gets each week as one of the privileges of membership in the American Medical Association.

In addition to the journal of the Association, the writer believes that there are very few physicians who cannot afford one other weekly medical journal. There are a number to select from, each having something to commend it, and while it is not my purpose to make any invidious comparisons, it is my own strong conviction that the journal whose ownership is divorced from all outside business interests, and which is largely managed and controlled by medical men, is the one which most deserves, and which will best repay, their support. Such a journal can fearlessly discuss and expose the schemes which are, and which always will be, from time to time, devised for the furtherance of individual interests at the expense of the good name of Medicine. Having two weekly medical journals, it might seem that the average medical man, especially if he felt obliged to figure his expenses closely,—and who of us does not?—was well supplied. So he is well supplied, and if his only object is to keep in touch with the general world of medicine, he may perhaps stop with his weekly journals. The physician who does not live in or near one of the great

medical centers where the medical weeklies are published, feels, or should feel, another need which it is the function of medical journalism to supply. This need—and a most important one it is—is to keep in touch with the profession of his own neighborhood. Nearly every county has its own medical society,—every county which has physicians enough to organize one, should have its own medical society,—and there are numerous other local medical societies; and every state should have its own medical journal, which should have as one of its most important objects the placing on record of the doings of the various local medical societies, and the publishing of the more important papers read before them. Such a journal, if well conducted, should receive the support of the whole profession of the state. The ideal plan would be for the state medical society to own and publish the journal and have it occupy the same relation to the medical profession of the state as the Journal of the American Medical Association occupies to the medical profession of the country. Where there are a number of rival medical journals in the same state, it is the duty of each physician to ascertain the best one, usually an easy task, and give that one his earnest support.

In return for this support, what does the medical journal owe to its subscribers? It owes them the prompt publication of all medical society reports and notices, whenever such are furnished in proper season by the secretaries of these societies—and here let me say, in passing, that these societies should insist upon their secretaries sending reports of their meetings, regularly, to at least one of the journals published in the state. It owes them an active support in all matters pertaining to medical organization, and medical legislation for the suppression of quackery and for the regulation of medical practice. It owes them a fair, honest, and discriminating review of all new medical books, by men competent to write such reviews, so that its readers may know which of the new books it will pay them to buy, and which ones to avoid buying. A most valuable feature of the local medical journal, and one which cannot fail to be of great service to its subscribers if the work is well done, is the abstracting of the important contributions to the different departments of medicine and surgery, taken from current

journals which its readers are, for the most part, not likely to have access to.

The local medical journal has a very important part to play in the uniting and organizing and holding together the members of the medical profession in its own territory, in voicing their sentiments on all matters of general interest to the profession, and also in bringing the medical men of different parts of the country into closer touch with each other. Many an important contribution to medical literature has been made in a paper read before some little-known local medical society, which would perhaps never have been printed had not the editor of the local medical journal pursued its author until he was finally induced to put his manuscript into shape for printing and send it in for publication. Many rare and important clinical observations are recorded in the local journals, which, were it not for the existence of these journals, would never be recorded. Such papers and clinical reports frequently give rise to correspondence between medical men in different parts of the country, and form the starting point of pleasant and valuable friendships between physicians who might otherwise have never known each other.

The local medical journal is a perfectly legitimate and a convenient medium by means of which those who are engaged in certain special lines of practice may make themselves and their work known to the profession of the state, either by means of papers and case reports, or by means of a standing card in the advertising pages of the journal. This latter method has never found favor in this part of the country, although in many places it is a common practice, and there can be no ethical or other objection to it.

The local medical journal owes something to its subscribers in regard to the advertising contracts which it accepts, and it certainly owes it to its subscribers not to sell to its advertisers a line of its reading pages. It is impossible to draw a hard and fast line between those advertisements which it is proper to admit and those which it is not; there will always be certain preparations concerning which opinions will differ. I believe all will agree that preparations of unknown composition should not be admitted. There can, however, be but one opinion on the subject of printing, as original articles or as edi-

torials, matter which is furnished by the advertiser concerning his preparations. This, it seems to me, is the lowest form of prostitution of which a medical journal can be guilty. The subscribers to a medical journal certainly have a right to demand that what they are given to read shall represent the honest and sincere convictions of the contributors to, or the editor of, the journal, and not advertisements disguised as reading matter.

If the local medical journal honestly strives to perform its duty to its subscribers, as I have outlined it, and to be in all respects loyal to the best interests of the medical profession, it surely has a right to expect something in return from the medical men in its legitimate territory. It should receive their subscriptions with prompt annual payment of the same. It should receive their support in the various ways which will help to make the journal prosperous and successful. Every physician has from time to time interesting and unusual clinical experiences which should be placed on record, and the writing out of which takes but a very short time. Medical journals are always eager to receive these clinical reports, and they are often more interesting and valuable to their readers than the longer and more elaborate papers. Medical men can assist the medical journals very materially by reporting their interesting cases more frequently than they do, and they will find that the doing so is of both direct and indirect advantage to themselves in various ways. It is not only the successfully diagnosed and treated cases that should be reported, but the failures and mistakes should also be recorded, the latter being often more valuable than the former.

The readers of a medical journal may also be of great service to the editor, and add much to the value and interest of the journal, by giving him editorial suggestions from time to time. A medical editor, if his heart is in his work, desires so to conduct his journal that it will reflect the best thought on all important medical questions, not only of general but also of local interest. Many subjects must, from time to time, suggest themselves to the readers of the journal which have not occurred to the editor, and the discussion of which would be of interest and of value. Physicians would confer a real favor upon the editors, at least upon some editors, by corresponding with them occasionally upon the editorial management of their

journals. Letters to the editor, for publication, upon subjects either of local or of general medical interest, are always gladly received, and show a friendly interest in the journal, which is always pleasant to the editor.

Another thing which medical men owe to the good medical journals is, not only to refuse to support, but to do all in their power to discountenance, the poor ones. There are a large number of cheap medical journals, usually owned and managed by persons having no interest in the medical profession, which are conducted solely for the purpose of making money, and whose editorial and reading pages are for sale to the highest bidder. The pages of these journals are usually filled with so-called original articles which are furnished by their advertisers, and which consist, for the most part, of spurious case-reports of patients said to have been cured by this or that proprietary or patent medicine. These journals usually have a large circulation, because, having practically no bona fide subscription list, they are mailed to physicians whose names are taken at random from the medical directory, and they can make their circulation as large as they desire. Such journals are not only a blot on medical journalism, but they are distinctly detrimental to the interests of scientific medicine, and should be repudiated and discountenanced by all decent physicians.

Medical journalism as a whole can be, and should be, moulded by the medical profession as a whole, and if medical men would give a little more thought to the matter they could easily eliminate the bad journals and maintain and improve the good ones. If every physician who has at heart the best interests of his profession and of scientific medicine, would look carefully into the subject of medical journalism, and having thoroughly surveyed the field would subscribe only to those journals which appeal to him as being substantial, clean, honest, and well conducted, and would not only refuse to subscribe to, but would refuse to support in any way, those journals which are either owned by or which pander to commercial enterprises whose only object is to make money out of the medical profession, we should have fewer and much better journals.

DISCUSSION

Dr. W. A. Jones: I wish to congratulate Dr. Foster for his grouping of the subject-matter of his paper. My experience

is very similar to his, and I cordially endorse all he has said.

The paper will do a great deal of good, for it calls the attention of the members of the State Medical Society to the necessity of supporting a good medical journal. One who is placed in the position of an editor, knows how difficult it is to extract articles from the profession. They seem to think for some reason that their modesty protects them. They refuse or decline because their subject-matter is to them of an inferior character, but a great deal of it is of the highest value, and should be published in a reputable journal. If the paper does nothing but show the secretaries of county societies how they can advance the interests of such societies, it will serve a good purpose.

STATE SANATORIA FOR CONSUMPTIVES

H. LONGSTREET TAYLOR, A. M., M. D.
St. Paul

The subject of tuberculosis, which has always been one of great interest to medical men, has become one of such importance that international and national conferences upon it have become the order of the day, and prominent non-medical men, even rulers of empires, have considered it worth while to take an active interest in it. This is not because its ravages have increased in a manner to cause acute alarm, but because it has held its own in the face of victory after victory of medical science over the other pestilential enemies of mankind until no rival is left to dispute its claim as the most fatal disease of the human race. Hence it has become a question of international importance, and world-wide interest. So great is this interest that the determined fight now being made against it has well been named a crusade. The Central International Bureau for the prevention of consumption has been organized with headquarters at Berlin within a few months. The object is to keep those men who are actively engaged in the antituberculosis crusade in touch with each other, and to keep them mutually informed of the progress of the work in all countries.

Germany is far ahead of all other countries in this movement, which has already received such an impetus on account of the wonderful results of her wise and beneficent socialistic laws. They were intended primarily to insure the working-classes against the impoverishment of

sickness, bad health, and old age, by taxing their wages during the time of their activity and pensioning them if sickness or old age incapacitated them for work. Gradually the present system of sanatoria for the poor has been evolved from the practical application of these laws. The insurance companies were called upon for assistance on account of the ravages of tuberculosis so much oftener than for any other cause that they began gradually to treat their members, sick with the disease, in sanatoria. The results were so gratifying that at the end of last year, forty-three sanatoria for the poor were in operation, and nineteen were being erected. This was the growth of a decade. An object-lesson was being given to Europe, and other governments and peoples took it up, until now every European country, with the exception of South Eastern Europe, is actively engaged in the work of providing open-air treatment in sanatoria for their consumptives. From England it spread all over the world wherever the map has been painted red to indicate her colonies, and in Australia and South Africa such institutions exist to-day. One of the model sanatoria of North America is to be found on Lake Muskoka, near Gravenhurst, in Ontario.

The honor of having provided the first sanatorium for the poor, belongs to this country, and no more complete institution exists than the Adirondack Cottage Sanatorium of to-day, the outgrowth of seventeen years' experience. But with this splendid example to stimulate us, the growth of the open-air sanatorium idea has been slow in our own country, although it has begun, and before long every progressive state will be caring for consumptives of the poorer classes in state institutions. Men are living to-day who remember the first state asylums for the insane, but what state would be satisfied now to do without them? Massachusetts has had a state sanatorium for several years, and has just completed extensive additions to it. New York State has purchased a large tract of land in the Adirondacks, and is erecting a sanatorium. Pennsylvania has appropriated money to assist an association to conduct such an institution in that state. New Jersey, Connecticut, and Rhode Island are preparing to follow suit. Maine has an active association, and will soon have a sanatorium. Maryland has appointed a commission, as has Minnesota, to investigate this subject.

The Army and the Marine Hospital Service have each been given government reservations, formerly army posts, in New Mexico, and have sanatoria for their respective services in that land of continual sunshine.

From this short sketch of the rise and present state of this question, some idea of its magnitude and importance can be readily grasped. It has ceased to be a local question, and has become a world question. In order to make the crusade against tuberculosis successful in any degree the entire civilized world must join hands. By united and intelligent effort much can be accomplished, and the measures of this success will be in direct proportion to the extent of the movement. The more universal it is, the more signal will be the results attained.

The scientific part of the work must be done by the medical profession. Much of this has been accomplished. The all important demonstration that tuberculosis is a bacillary disease, and hence a preventable one, was made twenty years ago. The efficacy of the open-air treatment had been demonstrated by Brehmer and his students before this. There is, of course, still a great deal to do and many problems have still to be solved, but enough scientific knowledge has been accumulated to enable this crusade to be made intelligently and successfully. The part that governments must undertake has been clearly pointed out by sanitarians. Physicians should be required by law to notify the health authorities of all tubercular cases, thus an accurate record of all cases and their habitats could be made, and a great deal could be learned by the study of the statistics thus secured, both about the disease and the dangers of infected houses. The authorities should supply tubercular patients with literature, written in plain, unmistakable language, describing the methods by which the disease is transmitted and giving simple directions for avoiding the same, and for disinfecting their apartments. The authorities should be ready to disinfect the rooms of consumptives whenever requested to do so, or whenever such a patient dies. Hospitals should be provided by the government for advanced cases. The patients would be taken from their houses during the time when their presence there is a positive danger to the other inmates. Those who have no houses would be provided with an appropriate and comfortable place in which to pass their last days. As a

rule this class is now forced to go to some general hospital or poorhouse, where they constitute a most undesirable and unwelcome element, and become a dangerous factor to the other inmates. The state should also provide sanatoria for the incipient cases among the poorer classes. Here the poor man should be given all the advantages of the open-air treatment at a nominal cost, which in the case of paupers should be paid by the local poor-board.

The building and maintenance of such hospitals and sanatoria opens a field for private philanthropy that is practically without limit, as it would be impossible for any state to provide beds for all cases. This is especially true of all large cities, as municipal hospitals and sanatoria are particularly needed and are very rare. Although it is true that it would be impossible ever to segregate all tubercular patients in hospitals and sanatoria, yet the necessity of having such institutions and their value is beyond question. It is not because such hospitals and sanatoria are a great charity to those who have become poor and homeless on account of this impoverishing pest, that the state should maintain them, but they are required as a protection to the people from a communicable and dangerous disease. Even if it is possible to provide beds for a small percentage only of these sufferers, yet when they are provided there is a proportionate diminution of the spread of the disease. This proportion is greater than would at first appear probable, because the institution-life is an education in hygienic living to its inmates. They are taught how to manage their sputum, and destroy its power of injuring themselves and others. They are taught how to ventilate their rooms, and learn the value of fresh air. When they go home their neighbors hear of these things, and see them carried out. Thus the educational part of the work of a state sanatorium becomes an exceedingly valuable and far-reaching one, and invalids who have never been within its walls profit by its lessons. As a life-saving investment it more than repays any state. The example of the workingman's insurance companies in Germany, referred to above, proves this conclusively. The value of a life saved or prolonged is greater to a state than to an insurance company.

Hospitals where poor consumptives can go to spend their last months are a great protection to a community. Among ignorant people, in bad hygienic surroundings and

over-crowded rooms, the presence of a bed-ridden or very sick consumptive is a great danger. And just such cases are the ones that are found within the walls of these hospitals.

The experience of England is a most convincing argument of the value of such hospitals. Throughout the past century, England has been gradually building hospitals for consumptives, until to-day they have a capacity of 5,000 beds. Only recently have sanatoria for incipient cases been added, but as many of the poor consumptives as possible have been taken from their squalid surroundings to the comparatively comfortable hospitals. There they have ceased to be a danger to their relatives and friends, and a center of contagion or propagation of the disease was destroyed each time a new patient was admitted. The diminution in the death-rate from phthisis during the last half century in England has been fifty per cent. Sanitarians attribute this principally to the presence of these consumption hospitals.

The question that concerns us, as members of the Minnesota State Medical Society, is, Should Minnesota build such a sanatorium for her consumptives? Shall we join the rest of the civilized world in this undertaking to do something to control the spread of this destroyer of human lives and happiness and wealth, or shall we stand back, and allow this disease to go on in the future, as we have allowed it in the past, without restraint?

The death-rate from tuberculosis in our state is slightly on the increase. It causes over ten per cent of all deaths. During the last twenty years medical scientists have demonstrated that the ravages of this plague are to a very great extent preventable, and hence it becomes the part of wise statesmanship to take such steps as scientific teaching and the practical results of experience have shown to be efficacious. Large sums of money have been expended to induce immigrants to come to Minnesota and cultivate our fertile soil. The wise expenditure of some of the wealth which these men have produced would save the major part of the sixteen hundred who die annually and of the six thousand who are suffering with the disease at the present time. If it is good statesmanship to spend money to bring new citizens to a state, it is vastly wiser to spend some to keep them free from a

communicable and unnecessary disease, which to-day is the principal single cause of death in the state.

A sanatorium for poor consumptives would save the lives of many who without it are certain to perish. It would diminish the spread of the disease in the state by removing centres of infection from among the people. It would diminish the cost of caring for the sick consumptives, and would transfer it from the families that it would pauperize to the county or state treasury. It would relieve an untold amount of suffering. It would reclaim so many useful lives that it would be a paying investment. The labor of those discharged cured would earn so much wealth for the state that the original cost, as well as the cost of maintenance, would be returned many times over.

It is the duty of a state to protect its citizens from dangerous diseases, and the erection of a sanatorium is one of the things the state should do, to accomplish this. Therefore the question in regard to the state of Minnesota should be answered with an emphatic affirmative. A sanatorium for poor consumptives is a necessity, and it is the duty of the state to provide both sanatoria and hospitals for the poor consumptives within her borders.

DISCUSSION

Dr. H. M. Bracken: I have little to say in discussion except to indorse *in toto* the paper of Dr. Taylor. It seems most important that some active steps should be taken to care for those suffering from this most terrible disease. The doctor touched on many points that are important. First, the care of those in the incipient stage of the disease in order that they may be restored as healthy citizens to the community. Second, the care of those past relief, in order that their last days may be made more comfortable and, that the foci of the infection may be removed. This latter is a very important point. The doctor dwelt upon the educational features of these institutions. These are worthy of our consideration. It might be possible to cure tuberculous patients without sending them to sanatoria if we could persuade them to strictly follow instructions but this they are seldom disposed to do in private practice. In sanatoria it is different for the patients are under the absolute control of the medical men and nurses, and are compelled to follow their instructions. They soon learn the advantages to be gained by so doing with the result that after a time when they return to their homes they still follow the sanitary precautions with which they have become familiar at the sanatoria and thus become educational centers in their respective communities. It is certainly desirable that the state of Minnesota should be active in securing an institution or institutions for the care of this class of patients. It is true as stated by Dr. Taylor, that a large number die annually in Minnesota from this disease

and still we are supposed to be in a climate that is especially favorable to this class of patients.

Dr. D. Edmund Smith: I am very glad that the doctor has brought this subject before the Medical Society at this time, because it seems to me one of the most important of the branches of medicine that we are interested in, and one that has not been as thoroughly studied as some of the other branches. The first question coming to the medical man today is that concerning the treatment of tuberculosis. In talking over the subject with members of the Adirondack Sanatorium, I found that about 25 per cent of the people who are admitted are sent back perfectly well, that is the tubercular bacilli do not show in their sputum, while the remaining 75 per cent that are sent back live under better hygienic conditions and are able to secure for themselves the conforts of life and live to an average age. The tubercular bacilli appear in the morning sputa only and the patients are able to earn a livelihood. I asked an attendant at the Adirondack Sanatorium, and also at Rutland, what class of people were most affected, and he said those surrounded by the worst sanitary conditions. That is a valuable point to us in the method of treatment, for one of the best methods of stamping out the disease is to educate the people to have better sanitary surroundings. Put them into these sanitoria, after six months they go back home and they will not live in crowded houses, but will surround themselves with the best conditions possible, according to their circumstances, and endeavor to better their sanitary surroundings. It is not necessary to put up signs "Do not spit on the sidewalk." It is perfectly marvelous how well these people take care of themselves. At first there was great opposition to building these sanatoria in any locality but in a short time the people in the neighborhood became very much in favor of them, the sanatoria soon became great educational centers for people who want to know a little more about tuberculosis. They had to go a half mile from the station to find the town of Rutland, and to-day since the establishment of the sanatorium it is one of the best known towns in Massachusetts. The price of living has increased, the value of real estate has increased, farmers are putting up cottages, and people take children there who are delicate, because they know how to take care of them. The education gained in a sanatorium is the best possible step in the cure of tuberculosis. One great point in the cure of tuberculosis is early diagnosis. We find after the first stage, after the septic condition has started, the sanatorium will do little good, but if you can see the patient early enough, the best results will be obtained, but the general practitioner must be on his guard and make the very earliest diagnosis possible. The question of the difference between the incipient cases and the incurable cases, is a matter of good judgment and the personal influence the physician has over his patients. One of the great things that has made the Adirondack Sanatorium a success, is the fact that Dr. Trudeau encourages the patient under his care. He has nearly 100 in his institution, and it is his personal watchfulness and care of the patients that is a prominent factor in the treatment of this disease. It is not necessary to go away from your state or from your city to cure an incipient case of tuberculosis. It is done by the open-air

method. The old method was to send them away. They went away and were told to take a pair of dumb-bells and exercise. That was the worst advice that could be given. Give them outdoor treatment, but keep them absolutely quiet until the temperature is normal, and then a little exercise can be given, but if you give them exercise with high temperature, a fatal result will almost invariably follow.

In looking over the reports of tuberculosis in Minneapolis the past two years, the great number of cases occurred in the crowded wards, where the houses are the oldest. In the largest ward of the city where there were modern houses only one case in two years had died, and yet another ward, which was only about a fourth as large in area, but contains a larger number of people, had about eighteen cases, so we find that it is the old houses, those that are not in a sanitary condition, where people are crowded together, where tuberculosis is found in its worst forms. Our private hospitals do not receive tubercular patients. There are some cases that if taken to the hospital can be cured if given outdoor treatment. I believe this agitation begun in the state will work wonders, both for the health of the individual and also from an economic standpoint. Little if anything as yet is done in any of our state or city hospitals for the relief and cure of the incipient cases and yet a larger proportion of our tax-paying communities are afflicted with tuberculosis than with any other one disease.

Dr. Burnside Foster: I do not suppose there is a member of this Society or a physician in this state, who does not think it would be a good thing to have a sanatorium in the state of Minnesota for the treatment of tuberculosis, and if there is not a bill establishing such a sanatorium passed by the legislature at the coming session, it will be the fault of the members of this Society. Dr. Sweeney has told us very forcibly of the power possessed by the medical profession, and we should see that this matter is impressed upon the members of the legislature next winter. I understand that a resolution will be offered, endorsing the sanatorium plan, but that resolution will be of little value unless it is followed by personal work on the part of every member of this Society. With such personal work, we can bring influence enough to bear upon the members of the legislature to make them concede to our wishes in this matter.

Dr. D. B. Pritchard: I was very much interested in Dr. Taylor's paper, and if we are going to have a sanatorium in the state, we will have to arouse the interest of the public, and the only way we can do that is to bring to public notice just such papers as Dr. Taylor's. I see no better way of getting this matter before the public than to go to our newspapers, and get their aid in this matter, by having them publish just such papers as read by Dr. Taylor and we shall have no trouble in getting what we want.

Dr. H. Longstreet Taylor (Essayist): I am very glad the gentlemen have spoken as they have, and recognize the necessity of bringing this thing before the legislature. When I went before the last legislature and tried to get an appropriation for such an institution, I was told that I was the only one that had spoken to them about it, they had never been spoken to about the matter at

home, and thought there was something wrong about it. If everyone of you would see the members of your district before they come to attend the session of the legislature, and tell them what you want, that you think we should have such an institution, it would be a great help to the commission to get the favorable action of the next legislature.

HOW CAN THE PUBLIC BEST BE EDUCATED AS TO THE IMPORTANCE OF PREVENTIVE MEDICINE?

H. M. Bracken, M. D.
Minneapolis

How can the public best be educated as to the importance of preventive medicine? By going directly to the public and giving it facts.

We now have an abundance of medical societies, and the most advanced ideas as to this subject are kept well before medical men. The physician who is not well posted along this line of medicine at the present time has no one to blame but himself; but it is not the medical education of medical men that is going to give the public the best understanding of preventive medicine. To talk learnedly and quote statistics is not convincing. Rather, get at the facts; state them plainly to the people in such a way that they can understand them; and once the facts with their ill effects are understood, something will be done to change conditions.

The public cannot be influenced permanently for good by disconnected appeals. It must be through organizations, of a permanent and active type, that work is to be carried on.

What is secured through preventive medicine? The removal of disease causes; diminished suffering; fewer premature deaths. Who should have the greatest interest in such matters? The public. As a matter of fact, however, the general public is apparently lukewarm while the medical profession is at work. Strange indeed is this. A profession working, apparently, to remove the causes for its existence, while those who are receiving the benefit look on with indifference.

It is true that tuberculosis has become such a scourge that organizations looking to its suppression have started up, and these reach the public in ways that are practical and beneficial but this is but a drop in the bucket. Consumption kills its thousands, but the polluted drinking-water, the lack of sanitation at home and in public places, the selfishness that leads us to consider our own temporary inconvenience rather than the good of our neighbors—these all have a place in causing unnecessary suffering and death.

King Edward, in discussing tuberculosis at a recent congress in London, said *"if preventable, why not prevented?"* The same can be asked with equal pertinence of a large list of diseases,—a list that is constantly growing larger as we learn more of the causes of disease.

The public is best reached through systematic organizations, and these, when of the best type, consist of many parts working as a unit; as exemplified in our present attempt to make county and district societies a part of the state societies, these again being recognized as an important part of the national society.

Preventive medicine can be studied and enforced through civic leagues, improvement societies, various women's organizations, etc., through instruction along sanitary lines to teachers, and by teachers to scholars; through sanitary organizations. I have intentionally given the women's organization first place, for there is no class of people who suffer to a greater extent than women because of preventable diseases. Sickness means nursing, worry, exhaustion, and money loss; and sickness in a family throws all this upon the mother. Why should she not be indignant when a preventable disease appears in her household? Again, in dealing with preventable disease sanitary problems present themselves. These generally require the expenditure of money,—the public money,—and this in a village or city means an appeal to the village or city councils. It is easy if one is sufficiently shrewd as a wire-puller to secure the expenditure of public monies for very indifferent ends, but let an appeal be made to an ordinary body of local politicians for money to be used for sanitary purposes, and the measure is promptly turned down. Experience seems to demonstrate that the politician who cares little for the public beyond securing votes, is not free from woman's

influence. This has been well demonstrated in such cities as Philadelphia, New York, etc., where appeal after appeal from various bodies of men has failed to accomplish anything, but where civic leagues have within a reasonable time carried their points in suppressing a nuisance or in securing a pure water-supply. One of the important steps therefore in the education of the public as to the value of preventive medicine is the organization of the civic league, or its equivalent, in every village and city.

Second only to the organizations just referred to are the public schools. Teachers should have at least fair sanitary training, and should make good use of their knowledge. One has but to note the increase in diphtheria, scarlet fever, etc., upon the opening of schools in the fall to realize the power that teachers can and should use in the prevention of disease. A child with a suspicious sore throat may attend school. A teacher may assume that it is no part of her duties to note such fact. Her indifference may be followed by many cases of diphtheria, much suffering and death, demoralization of the schools, and even financial demoralization throughout the community.

On the other hand, a hint from the teacher that the child had a sore throat that should be investigated should lead to a prompt medical examination of the suspected individual, its exclusion from school, and the removal of all further danger from infection. Many teachers realize their responsible position in sanitary matters, and are of great assistance to officers who are responsible for the sanitary conditions of a village or city. Teachers can be instructed in matters pertaining to preventive medicine at their various gatherings (summer-schools, etc.) or during the preparation for their life work (normal schools, high schools, universities, etc.). Not enough attention is given to such matters in this state at the present time.

The move that was made last January looking to the establishment of a State Sanitary Association in Minnesota was a wise one. It will include in its membership any or all who are interested in sanitation, which is but another term for preventive medicine. It will give an opportunity for all interested to discuss topics of common interest relating to preventable diseases. Not only

this, but the various municipal authorities throughout the state will undoubtedly come to realize more fully their duties and responsibilities. In this association, through its various committees, special topics—such as tuberculosis, typhoid fever, water supplies, sewage-disposal, etc., should be so presented from time to time as to keep them prominently before the public.

Finally, our legislators should realize the importance of sanitation in its bearing upon human beings. It is often stated that you must touch the pocketbook rather than sentiment to secure legislation; that a man is often more interested in his stock than in his family. This is not the time to recognize such statements, but, granting the same for argument's sake, has not a human life a money value? It certainly has, far beyond that of domestic animals; and if nothing but selfishness is to prompt legislative action looking to the prevention of disease, there is plenty of argument along these lines alone to justify liberal appropriations.

SOME OF THE ETIOLOGICAL FACTORS IN EPILEPSY

W. A. Jones, M. D.
Minneapolis

Epilepsy, that mysterious affection characterized by attacks of unconsciousness with convulsions, is a term so commonly misapplied that, if not strictly differentiated in its types and causes, error and confusion mask the real disease.

If the word be accepted as descriptive of all attacks of disturbed consciousness and convulsive movements, and if the many conditions which accompany these symptoms be disregarded, the etiological factors may profitably range over a wide area; but if we designate and classify the true and symptomatic forms of the disease, the etiological atmosphere becomes clearer.

Convulsive attacks may simulate true epilepsy very closely, and yet the cause of the latter may have nothing in common with the symptomatic or reflex varieties. It would be well, then, to use the word *epilepsy* when we

mean the genuine, classical, idiopathic or true type, and to use the word *epileptiform* for those attacks that are symptomatic of distinct disease-states, reflex from irritants, and for attacks due to organic disease of the brain.

The genuine or true epileptic is one who is hereditarily burdened by neurophatic tendencies from ancestors who have suffered from the ill effects of civilization, syphilization, or alcoholization, and have transmitted to their offspring brain-cells inferior in composition and construction, which readily succumb to the duties imposed upon them, whether it be in early life or when the brain has attained its maximum growth or the associative centres are budding into full development.

The epileptic may start in life in a blaze of brilliancy, but at the developmental period his finish is ignominious and inevitable unless fully protected until the danger point is passed. The brain of the classical, or idiopathic, epileptic rarely shows any anatomical alteration, yet there must be some change that cannot be demonstrated by our present methods, for the attacks occur, and the type is formed without an appreciable etiological factor or structural change. Heredity is an important factor in epilepsy, as well as in many other nervous diseases. Its influences can be traced to one-third, and direct heredity to two-thirds, of the cases. The inheritance may come by transformation of neuroses, and alternate with diseases of the central nervous organs,—insanity, neurasthenia, hysteria, inebriety, tuberculosis, syphilis, or arthritis in either parent. A number of cases, however, develop without hereditary neuropathic influences and without adequate demonstrable causes.

In the majority of cases, a study of the ancestors, their vices, habits, peculiarities, and their diseases, offers a reasonable explanation for the physiological or anatomical defect in the child that gives way under an apparently trivial exciting cause. Granted that a child be born free from ancestral taint, but of fine nervous organization, accidents at or soon after birth, difficult, protracted or instrumental labor, a general concussion from a fall, or an injury to the head may retard, arrest or change the growth of the brain, and lay the foundation for a subsequent epilepsy. Infectious diseases in early life, before the brain is well balanced, are frequently the only ascertainable cause for the epileptic habit.

These inherited or acquired injuries or diseases belong strictly to the classical epileptic, whether the epilepsy begins early or late. It is a well known fact that the greatest number of epileptics begin between the tenth and twentieth year of life, and a reasonably large number before the tenth and after the twentieth year. The numbers grow less with each decade thereafter, hence a large number can be attributed to incidental, accidental, and disease states. These come more properly under the head of symptomatic epilepsies or are known as epileptiform attacks until the habit is fixed and constant, then for convenience sake are classed as epilepsies.

The most important of the exciting causes are autogenic intoxication, alcohol, syphilis, and overstrain.

At the present time intestinal toxemias are considered frequent causes for the epileptiform state. The invasion of bacteria through the alimentary tract is unquestionably responsible for the seizures, if not from bacteria themselves, probably from those generated by them.

Tenia may cause the fit by its presence alone, but it more likely results from the other parasites that accompany or develop from the greater worm.

Intestinal fermentation from overloading or crowding the organs of digestion mechanically may by pressure on some distant nerve tract be the sole cause of the convulsion.

Alcohol is a frequent cause of fits which are due to acute intoxication or the prolonged effects upon the kidneys, heart, vessels, and nervous organs.

Syphilis is so well recognized as an important factor that all cases developing beyond the thirtieth and until the forty-fifth year should be regarded with suspicion. It plays its part in acquired, symptomatic, and inherited epilepsy, and it is not always easy to separate the one from the other. It does so much damage to vessels and nerve-tissue that it masks the origin of its symptoms, and is so destructive in its effects that treatment is neither successful as a diagnostic nor beneficial as a cure.

The importance of overstrain, physical or mental, particularly in neurotic subjects, can hardly be overestimated. What may be harmless in one may be the greatest cause for concern in another; hence all neurotic subjects should be carefully instructed in the amount of work allotted them. Epileptiform attacks accompany or follow cere-

bral palsies in children from porencephalia, disease of the membranes, hemorrhages, abscesses, splinters of bone, the use of such drugs as cocaine, antipyrin, arsenic, chloroform, calabar bean, etc.; dentition in neurotics, possibly masturbation in a few; fright, outbursts of anger, irritation, and injury to the head in neurotics and alcoholics. Among the reflex causes we find occasional cases of epilepsy from tissue-scars with the point of a nerve entrapped in the cicatrix, or a small nerve in a state of irritability from diseases of the nose, ear, larynx, uterus, stomach or a diseased tooth. Errors of ocular muscles were at one time considered a common cause for many cases of epilepsy, but to-day this is known to be a rare factor. Where one considers this subject thoughtfully, the types of attack, and the many possible causes, he is inclined to go back and analyze the ground work, the poorly balanced brain, the defect in its construction, and its physiological impoverishment, and he finds the exciting causes to be really secondary, yet important, for many are preventable.

Freund says: "In all cases of epilepsy there is a disease of the cerebral cortex." Rindfleisch has stated that any given disease falls under one or the other of five etiological categories; over-exertion, injury, parasitism, defective growth or premature involution. This statement covers the epileptic and embraces all of the important etiological factors in epilepsy.

FOR DISCUSSION, SEE P. 285

SOME CLINICAL FEATURES OF EPILEPTOID CONDITIONS

A. C. Rogers, M. D.
Faribault

It is a rather strange fact that physicians seldom witness attacks of epilepsy. In general practice, the physician is only called when the attacks are unusually severe, and they are nearly always over before he arrives. Even in an institution the physician sees comparatively few of his patents during attacks, except when in status; so he is largely dependent upon the observations and reports of nurses for definite descriptions of clinical symptoms. The few notes presented here, from such sources, are for the

simple purpose of illustrating the deviations from the typical epileptic seizure, with its succession of phenomena —prodromes, aura, fallings in unconsciousness, tonic and clonic convulsions, stupor, and sleep—as exhibited in patients ordinarily considered to be epileptics.

1. B. S——, aged 27 years, admitted Aug. 21, 1901. Spasms began at 12 years of age. Great grandfather was insane. Patient would appear as well as usual, possibly talking to an acquaintance when he would suddenly collapse, his knees bending under the weight of his body, he appearing to drop vertically over his footsteps. Then he would instantly rebound to his normal position and the attack was over. He would often say, "Excuse me, I hope I didn't frighten you." He finally died in severe convulsions.

2. A. R——, aged 13 years, admitted March 1, 1897. Spasms began at 10 years of age. Father subject to *petit mal,* and sister died in convulsions. Attack manifested by patient dropping whatever he is doing, and walking rapidly about room; if stopped, becomes irritable, and pulls himself angrily away. This movement is continued for from 30 to 40 seconds, when he becomes drowsy, and will lie down and sleep for an hour or more. Usually manifests prodromes by yawning for an hour or so before attack begins.

3. J. T——, case of hemiplegia, aged 27 years, admitted April 25, 1890. Spasms began at 11 months. Family history good so far as known. Prodromes manifested by vicious and unhappy manner. Attack begins by rigidity for a moment, then impulsively pounding any person or thing near him. Has been known to knock a person down at this time. Spasms in this case can be warded off by forcibly compressing biceps muscle of right arm, or stepping upon right foot.

4. D. G——, aged 24 years, admitted September 10, 1881. Convulsions resulting from cerebrospinal meningitis at 18 months of age. Family history good so far as known. Patient manifests first symptoms by running at rapid gait for several rods, then falling in spasm.

5. F. H——, aged 28, admitted November 10, 1902. Spasms began at 20 months. Family history good so far as known. Prodrome, as irritable disposition, manifested for three or four hours before spasm. Attack first manifested by patient running for a few rods, but always carefully and methodically lying down before full attack, which is usually of rather a light character.

6. O. O——, aged 31, admitted June 3, 1900. Spasms began at 18 years of age. Mother was weak-minded, father very excitable. Attack begins by cramps in ends of fingers of right hand, which gradually extend up the hand. If they pass the elbow, patient experiences an ordinary convulsion. If attendant can grasp the hand when attack first begins and keep fingers, wrist, and arm extended, further attack can be averted. Patient usually attempts to ward off convulsions in this manner, and asks for assistance.

7. S. S——, aged 35, admitted August 31, 1890. Convulsions

from birth. Family history good so far as known. Attack begins by sensation in great toe of right foot, which he describes as numbness, at the same time he feels dizzy. He always carries a small rope, about two feet long, in his pocket. When he feels an attack coming, he asks for assistance, and starts for a chair, producing his rope. If assistance is at hand, and the rope is drawn tightly around right leg, below the knee, quickly enough, the attack will be averted. He always wishes a person at the same time to step on his right foot. The cutaneous excitement is thus increased, and the inhibitory effect is more marked. If this is not done promptly enough, he passes into a very hard convulsion. This, however, passes away quickly and the patient will go on with his occupation without any uncomfortable feeling other than a slight headache.

8. D. McC——, aged 26 years, admitted April 21, 1902. Spasms occurred when 2 years of age and ceased until he was 21, or five years ago. Mother had chorea when young. Patient has taught school for a number of years as a profession. Spasms are usually of the *petit mal* variety and manifested by assuming a stooping posture, and by manipulations with the hands that suggest pulling imaginary wax or strings, sometimes bringing hands together and separating them as though handling such matter, and sometimes bringing the fingers to the mouth and gradually pulling them away as though trying to pull strings away from the throat. This lasts only a short time when patient recovers normal condition.

9. W. S——, aged 31, admitted January 25, 1902. Spasms began in childhood. This patient, by force of will and by manipulation of his muscles and limbs, often wards off a spasm. He assumes voluntarily a rigid position, and says: "All right, I will fix him," and quite frequently succeeds in warding off the genuine spasm with loss of consciousness.

10. J. G——, aged 20, admitted April 15, 1897. Convulsions since 3 years of age. The peculiarity of this patient is that while he has very hard convulsions, the instant he is through the convulsive stage he appears to be perfectly normal, and will go on with whatever he was engaged in without passing through the drowsy period. He resembles in this respect Case 7.

11. A. P——, aged 17 years, admitted June 12, 1901. Spasms since 1 year of age. The paternal and maternal aunt each had light epileptic attacks. When we first knew this patient his attacks were very light, but gradually increased in severity. They are manifested by running for a door to an adjoining room, and after a few steps throwing his hands forward, as if for protection, and then falling upon them against the floor. As he comes out of the convulsive stage, he invariably asks for water which causes vomiting followed by a restful sleep. The nurses have discovered that by vigorous cutaneous excitement, especially by slapping the cheek with the palm of the hand, and directing him to run out into the yard and up the road, or at least indicating a long vigorous run, the attack will be avoided.

12. J. B——, aged 25, admitted November 17, 1896. Attacks began at 18 years of age. Paternal aunt insane. Patient has frequent nocturnal convulsions. She will frequently become

annoyed or angered during the day when she becomes hysterical, throws herself upon the floor, rolls over, bites at any person or thing in her way, but is always careful not to injure herself. About every other time that she manifests this hysterical frenzy, she goes into a genuine epileptic convulsion. Upon coming out of this, she will be quite good-natured and happy. When convulsions do not follow these symptoms, she remains for two or three hours very moody and sulky.

13. S. C——, aged 46, admitted November 21, 1898. Attacks began at 14 years of age, and were said to have developed following a kick in the stomach by a horse. Family history good so far as known. Patient has very severe spasms, but claims that she is conscious during the attacks. There is nothing in her manner or appearance to support this claim, though several of the nurses who have seen her during attacks, seem to believe her statement. One incident is on record in verification of this claim. The patient was sent to the hospital, Dr. Warren attending, on August 9, 1901, in what appeared to be status epilepticus. She was given mag. sulph., one-half ounce, soon followed by choral and potas. bromide in doses of ten grains each. Hot applications were made to the feet. Convulsions were present with greater or less frequency for 17 days, during which time she had 2,541. After this they ceased, and the patient resumed her normal condition. The climax was reached on the seventh day, when the number reached 505. The temperature reached its climax of 103° on the third day. On the evening of the second day, the nurse thought the patient was dying, and remarked to her companion that she must call the doctor, as she did not want the responsibility of her death without a physician being present. These and other comments made at the time were referred to by the patient afterwards, although the nurse says she was in active convulsions at the time the conversation took place.

14. W. B——, aged 24, admitted July 11, 1901. Convulsions began at 5 years. Family history unknown, except that patient states that the mother was affected with an overdose of morphine. Evidence is not clear as to whether this was during gestation while carrying this child, or whether she was a morphine habitué. A peculiarity in this case is the fact that the patient enjoys the spasm. He feels perfect delight in the recollection of it, and is anxious to have the spasms repeat themselves. This is in strong contrast with the feelings of the majority of epileptics, who always live under a dark cloud, a dread of a coming attack, or a wretched, worn-out feeling following one.

DISCUSSION

Dr. H. A. Tomlinson: Dr. Rogers' paper is especially interesting, because his careful clinical descriptions serve as a means to differentiate between the true epileptic convulsion and what has been called the para-epileptic convulsion. In the latter class may be placed all of those cases in which these bizarre manifestations exist, and where the convulsive seizure is individual in character. These cases are usually included in descriptions of eplilepsy, but they are not the true disease. Gowers, in his recent treatise on epilepsy, explains in detail why they are dif-

ferent. It is important to accentuate what Dr. Jones said with regard to the conditions which give rise to true epilepsy, and give prominence to the fact that there is what is known as the epileptic constitution. It must be remembered that the causes of convulsion are not exclusive, and that they are commonly present in most cases of illness and injury, and so we must recognize the fact that behind the immediate cause of the outbreak there is some inherent predisposition in the individual, which, for want of a better name, we call the epileptic constitution, and the presence of this tendency in the individual makes him liable, in the presence of the immediate exciting cause, to these irregular explosive outbreaks, accompanied by loss of consciousness. It is interesting to note, also, that in those cases that have a peculiar or prolonged aura, or where the aura has associated with it pains and paresthesia in different parts of the body, the convulsion usually comes on slowly, and the loss of consciousness is gradual. Then again, the sensation of shock or injury, and the feeling of suffocation, are commonly the persistence of uncomfortable sensations associated with the slowly returning consciousness. And when you come to consider that there can be no appreciable lapse of time, to the individual, between the loss and dawn of returning consciousness, it is not surprising that he should associate these uncomfortable sensations with something which happened before the convulsion.

Another interesting point in this connection is that, in those cases in which the bizarre manifestations occur, and where the so-called double consciousness is present, there is invariably a history of hysteria as well as of epilepsy. In these cases of peculiar convulsions, like the one so well described by Dr. Rogers, where the patient was able to repeat what was said during the apparent continuance of the seizures, the condition is really one of hystero-epilepsy, because the individual is hysteric as well as epileptic. I believe it may be laid down as almost an absolute rule that where there is an extraordinary number of convulsions, without any serious effect upon the vitality of the individual, the convulsions, although they may resemble epilepsy, are really hysterical.

Dr. C. H. Mayo: Dr. Jones made a point about reflex action. I saw an interesting case last week. A physician from the western section of the state sent a patient down for an examination, giving a history that she had epilepsy and was suffering from pelvic tumor. The case was a girl fourteen years of age. She had been menstruating regularly for the first year, and during that time she had had five attacks of epilepsy, the last one the day of her arrival, shortly after the arrival of the train, and an examination showed a cystic tumor of the pelvis, which crowded down upon the perineum, and the small os crowded on the left side of the vaginal wall. The diagnosis proved that she had a double uterus, had been menstruating from one and the cervix of the dilated uterus opened into the canal of the uterus which was menstruating, and the tumor was the size of a small cocoanut, and tightly filled with the retained menstrual flow, from the past year. This was entirely removed and the one uterus left. It seemed to me a true case of reflex epilepsy from a rather unusual cause.

Dr. A. C. Rogers (Essayist): In the case of the woman who had a large number of convulsions: she seemed conscious most of the time, and if she were really conscious it would seem to my mind a case of hysteria as far as those particular symptoms were concerned. It does not often occur that in a series of convulsions a patient will be perfectly conscious between attacks, when they follow rapidly, and it is hard to differentiate between epilepsy and hysteria where the patient remembers nothing in these small intervals, without watching the patient very carefully.

A PLEA FOR INSTRUCTION IN MASSAGE AND KINETOTHERAPEUTICS (SO-CALLED "SWEDISH MOVEMENTS") IN THE CURRICULUM OF OUR MEDICAL COLLEGES

OSCAR A. FLIESBURG, Ph. G., M. D.
Minneapolis

The lines of instruction for which I have been asked by the chairman of this section to make a plea, are no longer unknown to the average medical and surgical practitioner. In fact, the history of these measures dates back to the most ancient times. The Assyrians, the Babylonians, the Egyptians, the Greeks, and the Romans were all of them well acquainted with, and enthusiastic lovers of, massage and gymnastics, as well as baths; and very often those agents were used in skillful combination, not only to combat disease, but also as a means to beautify their bodies and add symmetry, suppleness, and grace to their motion. The ancient Hindoos and Persians knew of the beneficial effects derived from massage, as can be seen from their sacred writings. The Chinese, and especially the Japanese, have for centuries been well acquainted with the action of massage. The Moors have used it for ages. The Incas, the New-Zealanders, the Maoris, and the Hawaiians all practiced a form of massage, and were fully cognizant of its therapeutic effects.

But to the brilliant genius of my great countryman, Pehr Henrik Ling, belongs the honor of first bringing out of this chaos of empiricism a system founded upon a scientific basis. The discovery was due to the incident of his

becoming a sufferer from a rheumatic affection of the right forearm—an incident fortunate for humanity, although painful for him. Trying in vain to get relief, by the different means then in vogue, from invalidism and intolerable suffering, at that time doubly a burden to him, for he earned his living as a fencing master, as a *coup de finale,* he hit upon the idea of relieving himself from pain and stiffness by the systematic use of movements and massage, and with such success that he soon found himself cured and restored to former use and suppleness of limb. Being of a contemplative, reflecting, and philosophical mind, he reasoned that, by the systematic use of different kinds of movements, nature and medicine could be assisted in the cure of numerous chronic ailments. He therefore, with great patience and industry, began the study of anatomy, physiology, physics, and kindred sciences, scientifically and for the purpose of building up a system of anatomically correct movements as an aid in curing otherwise incurable, or only with great difficulty curable, ailments, and thereby helping the medical practitioner in the treatment of especially such diseases as were the result of stasis in different parts of the body-system; for instance, rheumatic affections of joints and muscles, paralysis of all varieties, neuralgias, headaches, nerve affections, deformities, and all chronic diseases where a bettered condition of the circulation and a subsequent nourishment of the affected parts are needed.

His ideas and efforts were first scorned by the medical profession, as smacking of charlatanism, but slowly they gained their victory, and in 1827 or 1828 he succeeded in inducing the Swedish government to aid him liberally in the founding of an institute where his principles and methods should be taught and practiced. This institute still exists and is named the "Royal Swedish Gymnasto-Orthopedic Central Institute," and is the parent institution of all similar places for the instruction and teaching of this important branch of the healing art, now existing in the world. No grander monument to a human benefactor has ever been erected than this; none to the memory of man greater than this magnificent institution—magnificent, not on account of its splendor or grandeur, but because of the incalculable good done to mankind by its founder, his disciples and successors.

The first to follow in the footsteps of Sweden was

Denmark, which in the 40's opened an institution similar in aim and purpose to the one in Stockholm. In Gothenburg, Kristiania, Berlin, Moscow, St. Petersburg, Helsingfors, Paris, London, Rome, Vienna, Buenos Ayres and other places, institutions of a similar kind have gradually been opened; mostly by disciples of Ling and his successors, Zatherberg, Hartelius, and others. The Swedish Universities of Upsala and Lund have long included the teaching of massage and gymnastics in their curriculums, and every Swedish graduate of medicine has a good working knowledge of this therapeutic agent and its principles, enabling him to judiciously and appropriately prescribe its use wherever it is needed.

In this country we have such distinguished men practicing and endorsing this branch of therapy, as Hogner, Graham and Enebuske, of Boston; Taylor Brothers, of New York; Benj. Lea and Weir Mitchell of Philadelphia; and many more of the medical profession. Among professional gymnasts and masseurs who have done yeoman service in introducing this branch of treatment, I must needs mention the names of Sparre, Ahlstrom, and Jochnich, of Chicago; Posse, of Boston, who is still more remarkable for his introduction into the Boston School System of the so-called Swedish health-gymnastics, a system of exercise adopted and practised in Sweden and other countries for developing the growing school-children into strong and healthy men and women—*Mens sana in corpore sano;* Grafstrom, now of Jamestown, formerly of N. Y. City, and now a graduate of medicine; Broodeen and others, of New York; Kurre Ostrom, of Philadelphia; Wallin, of Baltimore; Sohlberg and Snévé, of St. Paul; and A. Lind, of Minneapolis, the last three being graduates of medicine. In special fields we have the names of Zabludowsky, Kjellgren, and Cederhjelm; Brandt in gynecology; Zatherberg, Hartelius, Hoffmann, Taylor, and a number of other orthopedists of native and foreign origin. To Ling, however, the honor of the present high development of massage does not belong. The credit for this is due the great Metzger of Amsterdam. Ling paid his greatest attention to the development of the different forms of mechanogymnastics, viz., active, passive, active-passive and passive-active. Metzger's system of massage is now recognized as the best, and is used all over the world in preference to all other methods. Great

improvements are due to Zabludowsky, Graham, Kjellgren, Taylor Brothers, Let, Mitchell, and others.

The Swedish movements have shown themselves invaluable in the treatment of the different forms of neuralgias, like trifacial, frontal, occipital, brachial, ulnar, sciatic, tibial, etc. In fractures of the extremities, where neuralgia often follows as a sequel, skillfully applied massage, first passive, then passive-active and active-passive, and lastly active movements, will often produce a re-establishment of functions, where otherwise a doubtful surgical interference would give the only reasonable hope of restoration of function. In ischialgia, conscientious movements and massage will cure the most obstinate cases. Nothing can excel this treatment in habitual constipation. In chronic rheumatic joint-affections, with secondary deposits, it will not alone remove the pain, but will also help absorb the exudate and remove the stiffness. In ankylosis of the different joints, if ligamentous or fibrous, the stiffness can always be removed, and the limb restored to absolute usefulness. In gynecology the combined method of massage and movements will positively remove all exudates and deposits, restore displacements, strengthen ligaments, and at the same time cure the constipation nearly always present.

Brandt claimed, and successfully demonstrated to the satisfaction of Schauta, Hagar and other prominent German gynecologists, the possibility of restoring and curing, without operation, retroversion, retroflexion, descensus uteri and ovarii, and all lateral displacements, by the combined use of massage and suitable movements. Still the greatest and most enduring and valuable effects have been obtained in the treatment of Pott's disease in its earlier stages. In the different curvatures of the spine, and also in deformities of the upper and lower limbs, such as ankylosis, clubfoot, bending of the legs and arms, etc., and in writer's cramp, no other treatment has given such results as massage combined with passive-active and active-passive movements. In neurasthenia hardly any treatment will be successful without the skillful application of these agents, at one time or another, during the progress of this most tedious ailment. In the treatment of diseases of the respiratory and circulatory organs, the judicious use of kinetotherapeutics will produce truly wonderful results, toning up and strengthening and oxy-

genating the whole circulatory system. In all invalidism, whatsoever the origin or character, mechanogymnastics are always for the better when judiciously used—sometimes surprisingly so.

After having thus sketchingly outlined the history of sick-gymnastics and massage, and briefly referred to its therapeutic value, I will now most earnestly plead for its more general adoption as a means of cure, and for its introduction as a study in our medical colleges. I dare to assert that we cannot afford to let such a handmaid so valuable to scientific medicine go begging, and fall into the hands of robbers and thieves, quacks, charlatans, and pretenders, such as adopt the faa of osteopathy and other heresies of like kind. I hold it our most sacred duty to the younger members of our noble medical profession to teach them the real value of agents so capable of and active for good; to make them understand and appreciate, and intelligently use them, scientifically not at haphazard, and not permit them to think that they have done their full duty towards their patrons, when they have sent them to the first pretending masseur or professional rubber that happens to come in their way, not knowing an iota as to his qualifications and fitness for the work required.

Gymnastotherapeutics is a science, and must be learned. It cannot be picked up in a few days. It is also an art, and a consummate one, that needs a long time for learning and mastering. Every young man graduating from our schools should be taught how to apply and skillfully use these movements intelligently. He should be able to write a prescription for the movements and grips as carefully and skillfully as one calling for quinin, strychnin, or morphin, and should be able to know if his prescription is correctly and skillfully filled by the masseur or gymnast, for that is the relative position a medical gymnast should hold towards the prescribing doctor.

The curriculum for the medical student should extend over no less than two terms of six months each, preferably in the second and third years; for the professional (medical) gymnast the course should be no shorter than three terms of six months each. To be able to register as a student for the degree of Medical Gymnast, the applicant should possess a good preliminary education; be used to nursing, and show his moral and physical aptness for

the work; have a fair knowledge of the principles of anatomy and physiology; and be a good student of human nature and of an observant mind. The medical student and gymnast should be taught together. They should learn to know all the manipulations and grips, and should be able to do them themselves and to teach them to others, to a nurse for instance. The medical student should especially be taught to prescribe the necessary movements and manipulations needed for the particular disease. He should master the technique and terminology of the art, and be able to judge and superintend the masseur, not with superficial knowledge, but with genuine critical superintending and understanding. As the whole success of the massage treatment depends upon the judicial application of force, the student should be thoroughly instructed in the need of judgment in any case as to the amount of force to be used to get the desired effect, always bearing in mind that the remedial agent is a two-edged sword, liable to do good or evil according to the dosage given. It will be necessary for the masseur to always bear in mind that the laws of physics nowhere are of greater import than in the application of his remedial agents. In connection with kinetotherapeutics I would earnestly advocate a thorough course in balneotherapeutics for the medical student of to-day. This branch of medical science ought to be combined in one chair with kinetogymnastics.

Lastly, let me speak a few words about a kindred agent or form of treatment, the so-called "mechanotherapeutic" system. Doctor Gustav Zander, a pupil of the Royal Swedish Institute, Stockholm, began early in the '50s to invent mechanical apparatus to more accurately and precisely dispense the different forms of massage and movements. His advance was an advance, not only in name, but in fact also; and he has so completed his system that it now includes an apparatus of 125 pieces, and so finely are his machines adjusted that he is enabled with their aid to do the work of the most skillful manipulator. Doctor Zander has been enabled, by the niceties and arrangements of his appliances, to treat such ailments as formerly needed the most skillful masseur. It is not more than due justice that I mention that the Messieurs Taylor of New York have also diligently worked in the same line, and developed a mechanotherapeutic system of their own. It may

probably be of some interest for the profession, as a whole, to know that the immortal Ling did not simply develop a system of gymnastics for the sick, but was also the father of a system of health- or school-gymnastics which has been employed for nearly a century in Sweden and Scandinavia, and is now steadily gaining ground in all civilized countries. In this country it is already introduced in Boston, New York, Philadelphia, and other eastern cities, and I think also partially in Chicago. An attempt has been made to introduce it in Minneapolis, but it was not a success, probably due more to the lack in the teacher of a thorough knowledge of its vital principles than to anything else. I think, though, that in a modified form it is till used to a certain extent.

If I have succeeded in this plea in keeping your interest, and have awakened you to the importance of the subject, or if I have added, by this my earnest plea, a mite to the evidence of the necessity for instruction in this most valuable aid and true handmaid to medicine, then I think, gentlemen, we shall soon see the day when such vagaries as Osteopathy and "Bonesetting" will vanish from the field of medicine, and we shall see their mistaken prophets replaced by intelligent practitioners of medicine and by well-educated medical gymnasts and masseurs, to whom any conscientious and reputable physician can send his patients. Therefore, gentlemen, I urge most earnestly the establishment in every medical college of a chair of kinetotherapeutics in connection with balneotherapy and not only for the teaching of the medical student, but also for the instruction and creation of skillful medical gymnasts and masseurs; the course of instruction to be no less than three terms of six months each, and at the completion of such curriculum the degree of "Master of Gymnastics" to be given to such graduate, granting him the privilege and right to obtain a license from the State Board of Medical Examiners, entitling the holder to practice his or her art in the state in which he or she is residing.

DISCUSSION

Dr. Alfred Lind: As I had a paper of a somewhat similar nature this afternoon, I suppose I am in my right to say a few words on this subject. I must confess we are behind in this matter, and as physicians it is our duty to do our best to go ahead. I hardly believe there are any members here who believe in Osteopathy and its humbugs; and, still, when we look over the field

we find the Osteopath has it because we have left it open,—because we have left the Swedish movement and massage out of our practice. A good many of the ills that human flesh is heir to can be relieved by Swedish movement and massage, but I would not recommend an Osteopath to do it. I have seen in my practice patients that have been relieved by it, not because I could not give it to them, but because I did not have the chance; and I took the stand this afternoon that no physician can be a success as a masseur. I do not think that any physician can make a successful masseur, and if we are going to make a success in that branch of medicine we have got to educate certain persons for it, and in my estimation these certain persons should be graduate nurses, taking a course in massage and Swedish movement after they are through with their course as nurses. Experience in the old country proves that by taking anyone, patients will go to a certain class of quacks like Osteopaths in our country. It is a bad thing not to have anybody to help us when we need help to give massage or Swedish movement, but it is bad also to have some one on every corner to fool patients that come into their hands. By having graduate nurses educated to this certain branch of medicine, we shall do away with that, because they have been accustomed to disease, and they will have confidence in the physician, and will know enough to consult a physician when their knowledge is not at hand; and, besides that, the work should be under the control of the medical profession, and every masseur should be instructed in the work he is to undertake, and to let alone cases that do not belong to him.

I have been working along this line of instructing nurses at the Swedish Hospital, but it is very slow work, and if someone else were inclined to take it up there is plenty of room for it; and if there could be concerted action there might be something accomplished by it.

Constitution and By-Laws

Adopted June 19, 1902

ARTICLE I

NAME

This association shall be called "The Minnesota State Medical Society."

ARTICLE II

PURPOSES

Its object shall be (1) the association of the medical profession on a basis of good fellowship; (2) the maintenance of harmony and good government among its members; (3) the cultivation of medical science and literature, and the elevation of the standards of medical education.

ARTICLE III

MEETINGS

An annual meeting shall be held alternately in the cities of St. Paul and Minneapolis, beginning on the third Wednesday in June of each year, and extending over three days. The place of meeting may be changed by a two-thirds vote of the members present at any regular meeting. Special meetings may be called by the president upon the petition of ten members, and a twenty days' notice thereof shall be published in the daily papers of St. Paul and Minneapolis.

Fifteen members shall constitute a quorum at any meeting.

ARTICLE IV

MEMBERSHIP

The active members of the Society shall be regular physicians, who shall hold the certificate of the State Board of Medical Examiners or its legal equivalent, and shall be of good professional attainment and moral character.

The honorary members of the society may be residents or non-residents of the state.

The list of honorary members shall be confined to such persons as have distinguished themselves in the field of scientific medicine.

The active members shall consist of all the active members of the Society at the time of the adoption of this revised con-

stitution, and of all the active members of all the county societies that shall vote to affiliate themselves with this society.

Membership in a county society shall be necessary for eligibility to the State Society, unless no society exists in the county where the applicant resides.

Physicians living in counties in which there is no county society in affiliation with this Society may become members by filing with the secretary of the State Medical Society an application setting forth their qualifications, and endorsed by at least two active members of this society. The names of such applicants shall be presented to the Society at each annual meeting and voted on at the meeting of the following year. Election shall be by written ballot, and a two-thirds vote shall be necessary to elect.

ARTICLE V

OFFICERS

The officers of the society shall be a President, three Vice-Presidents, a Secretary, a Treasurer, and a Board of Censors consisting of six members. These officers shall be elected by ballot annually, the censors to be chosen from the list of ex-presidents of the society, two each year, to serve for a period of three years, except in 1902, when six shall be elected, to serve, two for three years, two for two years, and two for one year.

A majority of the vote cast shall elect.

ARTICLE VI

COMMITTEES

The President shall annually appoint a Committee on Nominations consisting of one member from each congressional district in the state; an Executive Committee; a Committee on Finance; a Committee on Necrology; and a Committee on Publication, each consisting of five members.

ARTICLE VII

SESSIONS

The Society at each annual meeting shall hold a session of three days, and the duties of each day shall be divided into three periods, extending, respectively, from 10 to 12 a. m., and from 2 to 5 p. m., and from 8 to 10 p. m., excepting on the third day of the session, when the third period may be omitted.

ARTICLE VIII

PROFESSIONAL WORK

The professional work of the society shall be divided into three sections, viz.: (1) Practice of Medicine; (2) Surgery; (3) Hygiene, Medical Education, and Public Medicine.

Note.—Orthopedia, Otology and Ophthalmology shall be included with Surgery.

The Society shall give to each department in turn its general attention. A chairman of each department shall be nominated for the ensuing year by the Committee on Nominations, and shall be confirmed by vote of the society.

ARTICLE IX

ETHICS

The Code of Ethics of the American Medical Association shall be the rule of this society in matters of professional etiquette. Charges of unprofessional conduct may be preferred in writing against any member, and shall be referred to the Board of Censors, which shall cite the accused and his accusers to appear before it, shall hear the evidence in the case, and report a decision thereon to the Society. This report shall lie upon the table until the next annual meeting thereafter, when the Society, by a vote of two-thirds of the members present, may adopt the same, and censure or expel the offender.

ARTICLE X

AUXILIARIES

The county societies already in affiliation with this Society may continue in affiliation by passing a vote accepting the provisions of this revised constitution; any other county society desiring to affiliate with this society, shall apply by submitting a copy of its constitution and by-laws to a committee consisting of the president, secretary, and treasurer of this society. The said committee shall report their recommendation upon the application to this society at its next annual meeting, when the county society may be admitted by a two-thirds vote of the members present at the meeting.

ARTICLE XI

AMENDMENTS

This constitution may be amended by a unanimous vote of the members present at any regular meeting, or by a two-thirds vote of the members present after one year's previous motion or notice to amend has been given.

BY-LAWS

No. 1.—The President shall preside at all business meetings, shall have the privilege of casting a vote, shall appoint all committees not otherwise provided for and fill all vacancies in the same, shall keep general oversight of the duties of these committees, shall sign all official documents requiring his signature, and perform such other duties as appertain to his office by custom.

No. 2.—The Vice-Presidents shall assist the President in the performance of his duties, and in his absence shall preside in their order of rank.

No. 3.—The Secretary shall keep the minutes of all meetings, shall notify officers of their election and committees and chairmen of departments of their appointment, shall certify to all official acts, and transact all clerical business in behalf of the Society. He shall be entitled to draw an annual salary of $100.00.

No. 4.—The Treasurer shall receive all dues, and shall de-

posit the same in a bank or safe depository; he shall collect directly the dues of all members whose names are not on the rolls of the affiliated societies; he shall pay all bills; shall keep an account with the Society, and make a detailed report at each meeting; he shall notify members of delinquency in the payment of fees one month prior to each meeting. He shall be entitled to draw an annual salary of $100.00, and shall be required to furnish sureties in the sum of $3,000, said sureties to be approved by the President and Secretary of the Society.

No. 5.—Standing committtes shall keep regular minutes of their proceedings, and shall furnish copies of the same to the Secretary.

No. 6.—The Executive Committee shall arrange the conduct, and prepare the program, of each meeting, and mail a copy of such program to each member of the Society ten (10) days before the annual meeting. It shall recommend plans for the promotion of the objects and interests of the Society.

No. 7.—The Committee on Nominations shall meet immediately after its appointment, and shall nominate chairmen of the departments specified in Article VIII of the Constitution, to serve for the ensuing year, and shall report the names of said chairmen to the Society at its next business session.

No. 8.—The dues of those members of the Society, who are also members of an affiliated county society, shall be collected by the treasurers of the county societies. The dues of all active members shall be two dollars ($2.00) per annum, provided that when the active membership of this Society, not including the roll of honor, shall reach one thousand, the annual dues shall be one dollar ($1.00).

No. 9.—The Committee on Finance shall inspect and audit the accounts of the Treasurer, and shall recommend such annual assessments over and above the annual fee, upon the members, as shall be necessary to meet incidental expenses.

No. 10.—Members of twenty-five years' standing shall constitute the Honor Roll of the Society, and shall be exempt from the further payment of dues.

No. 11.—The Committee on Necrology shall prepare a memorial of any member or members who may have died during the preceding year, and shall present the same to the Society at the annual meeting.

No. 12. (a) The chairman of each Section shall lay out the plan of its work, and shall preside at its meetings.

(b) Papers to be read before the Sections shall be limited to fifteen minutes in the reading, and no person shall occupy more than five minutes in discussion, nor speak more than once on a subject. Chairmen of Sections shall incorporate this by-law in the invitation to members to write papers for Sections.

No. 13.—Any reports of standing committees or papers may be read by title upon vote of a majority of the members present, and shall be referred to the Committee on Publication. A synopsis of their contents may be given to the chairmen of the respective committees or departments if desired.

No. 14.—All motions presented to the Society shall be in writing, and, upon being seconded, shall be forwarded to the Secretary's desk for record.

No. 15.—Every new member not admitted through a county society shall pay an initiation fee of three dollars ($3.00) and his annual dues, and shall sign the Constitution and By-Laws. On or before the first day of January of each year, the treasurers of the affiliated county societies shall turn into the treasury of this Society, a list of those members who have paid their annual dues.

Any member who shall fail to pay his annual dues for a period of three years, after due notice from the treasurer, shall be dropped from the rolls, and shall be re-instated only by a two-thirds vote of the members present at any regular meeting, and on the full payment of his past dues, up to the time when his name was dropped from the rolls.

No. 16.—Robert's Rules of Order shall be regarded as the parliamentary text-book of the Society.

The Executive Committee shall have power to alter the regular order of business, provided that the changes be incorporated in the published program.

No. 17.—The operation of these By-Laws may be suspended by a three-fourths vote, and they may be repealed or amended by a unanimous vote at any regular meeting. If any objection is entered to such repeal or amendment it shall be laid over for action at the next annual meeting, when it may be adopted by a two-thirds vote.

ROSTER

Roll of Honor

(Members of twenty-five years' standing)

E. J. Abbott, St. Paul.
C. K. Bartlett, Minneapolis.
J. E. Bowers, Duluth.
D. F. Brooks, St. Paul.
E. J. Davis, Weiser, Idaho.
F. A. Dunsmoor, Minneapolis.
O. J. Evans, Minneapolis.
J. E. Finch, Hastings.
J. C. Fitch, Hastings.
S. D. Flagg, St. Paul.
J. F. Force, Minneapolis.
A. W. Giddings, Anoka.
C. N. Hewitt, Red Wing.
Charles Hill, Pine Island.
R. J. Hill, Minneapolis.
J. P. Humes, Winnebago City.
H. H. Kimball, Minneapolis.
C. A. McCollom, Minneapolis.
S. C. McCormick, Duluth.
J. B. McGaughey, Winona.
W. R. McMahan, Mankato.
R. S. McMurdy, Minneapolis.
G. R. Maloney, Belle Plaine.
W. W. Mayo, Rochester.
George W. Nichols, Milaca.
A. J. Murdock, Minneapolis.
E. Phillips, Minneapolis.
W. Richeson, St. Paul.
F. M. Rose, Faribault.
J. C. Rosser, W. Superior, Wis.
Charles Simpson, Minneapolis.
C. E. Smith, St. Paul.
Franklin Staples, Winona.
A. W. Stinchfield, Rochester.
A. J. Stone, St. Paul.
N. S. Tefft, Plainview.
A. C. Wedge, Albert Lea.
N. K. Whittemore, Elk River.
Arthur Young, Prescott, Wis.

Active Members

(The asterisk indicates new members)

A. W. Abbott, Minneapolis.
J. H. Adair, Owatonna.
J. C. Adams, Lake City.
W. T. Adams, Elgin.
A. M. Adsit, Hastings.*
A. G. Aldrich, Minneapolis.
Flora L. S. Aldrich, Anoka.
A. W. Allen, Austin.*
H. B. Allen, Cloquet.
A. B. Ancker, St. Paul.
C. A. Anderson, Rush City.*
J. D. Anderson, Minneapolis.
J. V. Anderson, Red Wing.
J. W. Andrews, Mankato.
W. A. Angell, Canby.
T. E. W. V. Appleby, St. Paul.
F. M. Archibald, Atwater.
O. W. Archibald, St. Paul.
W. J. Awty, Moorhead.
L. W. Babcock, Wadena.
Edmund Backe, Kenyon.
Knox Bacon, St. Paul.

L. C. Bacon, St. Paul.
R. S. Bacon, Montevideo.
W. R. Bagley, Duluth.
Florence C. Baier, Minneapolis.
A. L. Baker, Byron.
Ole H. Bakke, Blooming Prairie
J. P. Barber, Minneapolis.
Wm. de la Barre, Soudan.
G. C. Barton, Minneapolis.
E. E. Barrett, Glencoe.
Oliver T. Batcheller, Brainerd.
G. Willis Bass, Minneapolis.
Stuart Bates, Virginia.
C. E. Bean, St. Paul.
R. O. Beard, Minneapolis.
W. L. Beebe, St. Cloud.
C. J. Beise, Fergus Falls.
J. W. Bell, Minneapolis.
Karl Bendeke, Minneapolis.
A. E. Benjamin, Minneapolis.
J. L. Berthold, Perham.
J. W. Bettengen, St. Paul.
E. E. Bigelow, Owatonna.
F. E. Bissell, Minneapolis.
Helen W. Bissell, St. Paul.
A. O. Bjelland, Mankato.
Eduard Boeckman, St. Paul.
J. C. Boehm, St. Cloud.
Robert S. Bole, St. Paul.
D. W. Bolles, Browntown.*
Charles Bolsta, Ortonville.
G. W. Boot, Sanborn.
H. Bouman, Torah.
H. M. Bracken, Minneapolis.
A. J. Braden, Duluth.
C. H. Bradley, Minneapolis.
Charles W. Bray, Biwabik
J. B. Brimhall, St. Paul.
E. J. Brown, Minneapolis.
R. S. Brown, Minneapolis.
T. E. Burch, Glencoe.
E. E. Brubaker, Northfield.*
Frank Burton, Minneapolis.
Oscar A. Burton, Albert Lea.
W. J. Byrnes, Minneapolis.
Charles E. Caine, Morris.
W. G. Cameron, Brainerd.
J. H. Carson, Duluth.
H. E. Cassell, Litchfield.
A. B. Cates, Minneapolis.
T. J. Catlin, Delano.
J. W. Chamberlin, St. Paul.
W. A. Chamberlin, Waseca.
C. L. Chambers, Kasson.
O. S. Chapman, Minneapolis.
W. E. Chapman, Litchfield.
G. A. Chilgren, Sauk Rapids.
E. Y. Chilton, Howard Lake.
G. R. Christie, Long Prairie.
Thos. C. Clark, Stillwater.
E. M. Clay, Oronoco.
W. F. Cobb, Lyle.
J. C. Cockburn, Minneapolis.
Homer Collins, Duluth.
Alex R. Colvin, St. Paul.
A. T. Conley, Cannon Falls.
H. E. Conley, Cannon Falls.
D. M. Cool, Faribault.
C. O. Cooley, Madelia.
G. M. Coon, St. Paul.
H. C. Cooney, Princeton.
J. F. Corbett, Minneapolis.
E. O. Cosman, Minneapolis.
Walter Courtney, Brainerd.
W. A. Coventry, Brainerd.*
A. J. Cox, Tyler.
F. J. Cressey, Granite Falls.
J. A. Crosby, Minneapolis.
J. G. Cross, Rochester.
D. S. Cummings, Waseca.
Geo. R. Curran, Worthington.
G. W. Dahlquist, Willow City, N. D.
C. E. Dampier, Crookston.
J. W. Daniels, St. Peter.
H. L. D'Armes, Hector.
A. M. Davis, Burtrum.
H. W. Davis, St. Paul.
Horace S. Davis, Duluth.*
William Davis, St. Paul.
C. De Jong, Edgerton.*
C. F. Denny, St. Paul.
Godfrey Deziel, Minneapolis.
F. W. Dimmitt, Red Wing.*
Franklin A. Dodge, Le Sueur.
W. M. Dodge, Farmington.
J. H. Dorsey, Glencoe.
J. A. Dubois, Sauk Center.
R. C. Dugan, Eyota.
J. B. Dunn, St. Cloud.
J. H. Dunn, Minneapolis.
A. W. Dunning, St. Paul.
F. L. Durgin, Winnebago City.
Charles E. Dutton, Minneapolis:
J. R. Eby, Virginia.
I. L. Edmunds, Clearwater.*
Thos. S. Egge, Moorhead.*
J. J. Eklund, Duluth.

G. G. Eitel, Minneapolis.
J. G. Ericksen, Lindstrom.
W. C. Eustis, Owatonna.
Jas. B. Ferguson, Olivia.
C. M. Ferro, Minneapolis.
H. P. Fisher, Shakopee.
Oscar A. Fliesburg, Minneapolis.
W. Z. Flower, Gibbon.
C. A. Fjelstad, Glenwood.
Burnside Foster, St. Paul.
S. Friedlander, Minneapolis.
W. W. Freeman, Grand Meadow.
E. O. Freligh, Stillwater.*
L. A. Fritsche, New Ulm.
W. S. Fullerton, St. Paul.
J. F. Fulton, St. Paul.
W. W. Furber, Cottage Grove.
H. W. Gammill, Madison.
E. O. Giere, Madison.
Jas. S. Gilfillan, St. Paul.*
A. J. Gillette, St. Paul.
R. T. Gilmore, Fosston.*
A. J. Golden, Minneapolis.
B. F. Graham, Minneapolis.
C. Graham, Rochester.
D. Graham, Duluth.
Robert Graham, Duluth.
Carlton Graves, Aitken.
C. L. Greene, St. Paul.
L. Q. Greeley, Duluth.
H. J. Grivelly, Waconia.
A. F. Groves, Brainerd.
Karl E. Gryttenholm, Zumbrota.
H. A. Halgren, Watertown.
W. A. Hall, Minneapolis.
E. W. Hammes, Hampton.
M. Hansen, Hendrum.*
C. D. Harrington, Cloquet.
W. E. Hartshorn, Minneapolis.
T. B. Hartzell, Minneapolis.
T. L. Hatch, Owatonna.
V. J. Hawkins, St. Paul.
Geo. D. Head, Minneapolis.
O. A. Hegge, Austin.
C. H. Hegge, Austin.
W. F. C. Heise, Winona.*
A. Henderson, Merriam Park.
H. W. Hendrickson, Montevideo.
S. S. Hesselgrave, St. Paul.
E. Hildebrandt, Forest City.*
P. A. Hilbert, Melrose.
A. L. Hill, Monticello.
Knute Hoegh, Minneapolis.
C. J. Holman, Mankato.*
E. M. T. Holman, Mankato.*
P. M. Holl, Minneapolis.
Halvor Holte, Crookston.
R. I. Hubert, St. Cloud.
F. N. Hunt, Blue Earth City.
W. A. Hunt, Northfield.
C. H. Hunter, Minneapolis.
A. E. Hutchins, Minneapolis.
P. H. Irish, Akeley.
R. N. Jackson, Faribault.
J. H. James, Mankato.
H. P. Johnson, Fairmont.
J. P. Johnson, Owatonna.
T. H. Johnson, St. Paul.
M. C. Johnston, Minneapolis.
D. N. Jones, Gaylord.
M. S. Jones, Battle Lake.
S. S. Jones, Frazee.*
Talbot Jones, St. Paul.
W. A. Jones, Minneapolis.
Jacob Karn, Ortonville.
Benjamin Kelly, Aitkin.
W. D. Kelley, St. Paul.
C. A. Kelsey, Minneapolis.
P. E. Kenyon, Wadena.
C. R. Keyes, West Duluth.
Edward D. Keyes, Winona.
A. F. Kilbourne, Rochester.
J. D. Kilbride, Sleepy Eye.
S. S. Kilvington, Minneapolis.
C. M. Kistler, Minneapolis.
J. M. Kistler, Minneapolis.
F. H. Knickerbocker, Henderson.
F. A. Knights, Minneapolis.
B. C. Knudson, Tyler.
T. L. Laliberte, Minneapolis.
John Landenberger, New Prague.
L. C. Lane, Minneapolis.
N. S. Lane, Winona.
Howard Lankester, St. Paul.
C. A. Lapiere, Minneapolis.
W. S. Laton, Minneapolis.
H. E. Latz, Minneapolis.
A. A. Law, Minneapolis.
Frederick Leavitt, St. Paul.
J. E. LeClerc, Le Sueur.
Oswald Leicht, Winona.
J. B. Lewis, Waseca.
J. M. Lewis, Minneapolis.
Alfred Lind, Minneapolis.
Hans Lichtenstein, Winona.
J. Warren Little, Minneapolis.
James Lonsdale, Stuart, Iowa.
H. E. Lucas, Wabasso.

C. E. Lum, Duluth.
E. M. Lundholm, St. Paul.
Frank Lyman, Duluth.
R. F. Lynch, Monticello.
J. A. Lyng, Brandon.
James McAuliffe, Duluth.
W. J. McCarthy, Madelia.
Mary McCoy, Duluth.
Thomas McDavitt, St. Paul.
H. N. McDonald, Minneapolis.
G. K. McDowell, Spokane, Wash.
Hugh F. McGaughey, Winona.
William McGillivray, Pipestone.
G. W. McIntyre, St. Peter.
Jas. McKeon, Montgomery.
M. McKinnon, Foston.
W. E. McLaughlin, Willmar.
A. McLaren, St. Paul.
John McLean, St. Paul.
J. M. McMasters, Sauk Center.*
O. H. McMichael, Vernon Center.
J. W. Macdonald, Minneapolis.
W. H. Magie, Duluth.
George E. Maloy, St. Cloud.
J. C. Markoe, St. Paul.
F. P. C. Marquis, San Francisco.
C. C. May, Adrian.
M. L. Mayland, Faribault.
C. H. Mayo, Rochester.
W. J. Mayo, Rochester.
C. F. Meade, St. Paul.
B. J. Merrill, Stillwater.
G. F. Merritt, St. Peter.
Geo. H. Mesker, Olivia.*
M. Mikkelsen, Wells.
C. W. Miller, Virginia.
M. C. Millet, Rochester.
W. F. Milligan, Wabasha.
J. G. Millspaugh, Little Falls.
Lester C. Mitchell, Minneapolis.
C. W. Moore, Eveleth.
J. E. Moore, Minneapolis.
J. T. Moore, Minneapolis.
H. Morell, Litchfield.
G. A. Morley, Crookston.
H. McI. Morton, Minneapolis.
S. W. Mowers, Brainerd.
G. D. Moyer, Montevideo.
E. S. Muir, Winona.
W. B. Murphy, Minneapolis.
D. D. Murray, Duluth.
W. R. Murray, Minneapolis.
H. S. Nelson, Minneapolis.
William Newhall, Markville.
L. A. Nippert, Minneapolis.
C. F. Nootnagle, Minneapolis.
C. H. Norred, Minneapolis.
E. E. Novak, New Prague.*
G. W. Nuckolls, Tintah.*
W. F. Nye, Minneapolis.
H. J. O'Brien, St. Paul.
D. F. O'Connor, St. James.
T. O'Connor, Maple Lake.
F. H. Odendahl, St. Paul.
Justus Ohage, St. Paul.
W. A. Palmer, Redwood Falls.
F. J. Patton, Duluth.
G. R. Pease, Redwood Falls.
C. E. Persons, Marshall.
J. R. Peterson, Madison.
Robert M. Phelps, Rochester.
J. R. Phillips, Northfield.
H. A. Pinault, St. Joseph.
N. J. Pinault, Minneapolis.
Alcinda A. Pine, St. Paul.
O. S. Pine, St. Paul.
W. B. Pineo, Minneapolis.
F. T. Poehler, Morristown.
A. R. Pollock, Graceville.
Wm. Porteous, Minneapolis.
William C. Portman, Jackson.
D. B. Pritchard, Winona.
F. L. Puffer, Bird Island.
T. F. Quinby, Minneapolis.
J. A. Quinn, St. Paul.
B. M. Randall, Graceville.
S. W. Ranson, Dodge Center.
Soren P. Rees, Minneapolis.
C. S. Reimstad, Brainerd.
H. W. Reiter, Shakopee.
M. H. Reynolds, St. Anthony Pk.
W. J. Richardson, Fairmont.*
A. M. Ridgeway, Annandale.
E. A. Riley, Willow River.
C. E. Riggs, St. Paul.
C. J. Ringnell, Minneapolis.
J. H. Rishmiller, Minneapolis.
A. F. Ritchie, Duluth.
Harry P. Ritchie, St. Paul.
Park Ritchie, St. Paul.
Thomas S. Roberts, Minneapolis.
J. B. Robertson, Cottonwood.
J. W. Robertson, Litchfield.
J. M. Robinson, Duluth.
W. E. Rochford, Minneapolis.
Arthur C. Rogers, Faribault.
G. M. F. Rogers, Foxhome.
J. T. Rogers, St. Paul.

J. C. Rothenberg, Springfield.
J. L. Rothrock, St. Paul.
W. H. Rowe, St. James.
N. D. Satterlee, Winnebago City.
J. E. Schadle, St. Paul.
E. C. Schoonmacher, Perham.*
Geo. Schulze, Owatonna.
Arnold Schwyzer, St. Paul.
Gustav Schwyzer, Minneapolis.
C. A. Scoboria, Elk River.
C. L. Scofield, Benson.*
J. F. Scott, Windom.
G. E. Senkler, St. Paul.
P. E. Sheppard, Hutchinson.
G. E. Sherwood, Kimball.
A. Shimonek, St. Paul.
C. G. Shipman, Ely.
E. E. Shrader, Watertown.
J. S. Shrader, Springfield.
J. D. Simpson, Minneapolis.
C. G. Slagle, Minneapolis.
G. I. Smart, Blue Earth City.
J. A. Smeallie, Duluth.
C. A. Smith, Camden Place.
D. E. Smith, Minneapolis.
P. A. Smith, Faribault.
W. S. Smith, St. Claire.
H. Sneve, St. Paul.
Olaf Sohlberg, St. Paul.
J. E. Soper, Norwood.
A. E. Spalding, Luverne.
C. J. Spratt, Minneapolis.
H. L. Staples, Minneapolis.
E. D. Steele, Mankato.
A. B. Stewart, Owatonna.
C. A. Stewart, Duluth.
J. C. Stewart, Minneapolis.
A. G. Stoddard, Fairfax.
R. R. Stoner, Winthrop.
A. J. Stowe, Rush City.*
F. P. Strathern, St. Peter.
A. F. Strickler, Sleepy Eye.
O. C. Strickler, New Ulm.
E. S. Strout, Minneapolis.
J. H. Stuart, Minneapolis.
L. A. Sukeforth, Carlton.
M. Sullivan, Adrian.
Arthur Sweeney, St. Paul.
C. F. Sweeney, St. Paul.
H. B. Sweetser, Minneapolis.
C. H. Tasker, Minneapolis.
A. C. Taylor, Duluth.
H. L. Taylor, St. Paul.
J. A. Thabes, Brainerd.
David O. Thomas, Minneapolis.
Theo. Thordarson, Minneota.*
James I. Tibbetts, Wayzata.
A. J. Tictin, Maynard.
J. D. Titcomb, Duluth.
Frank C. Todd, Minneapolis.
H. A. Tomlinson, St. Peter.
F. E. Towers, Minneapolis.
O. C. Trace, Little Falls.
M. N. Triplet, Dawson.
G. A. Tripp, Tower.
J. M. Tufty, Duluth.
Wm. G. W. Tupper, Minneapolis.
G. J. Tweedy, Winona.
W. H. Twiford, Owatonna.
H. D. Valin, St. Peter.*
H. Van Beck, Hastings.
M. P. Vander Horck, Minneapolis.
C. A. Van Slyke, St. Paul.
F. W. Van Slyke, St. Paul.
W. C. Voigt, Stillwater.
Wm. Wakefield, Lake Benton.
A. E. Walker, Duluth.
P. A. Walling, Park Rapids.
Belle M. Walrath, St. Paul.
H. S. Walrath, St. Paul.
E. F. Walsh, St. Paul.
John Watson, Alden.
G. S. Wattam, Warren.*
H. E. Webster, Duluth.
I. D. Webster, Mankato.
J. D. Weir, Beardsley.
Geo. B. Weiser, New Ulm.*
J. W. B. Welcome, Sleepy Eye.
F. F. Wesbrook, Minneapolis.
J. B. Weston, Duluth.
C. G. Weston, Minneapolis.
C. A. Wheaton, St. Paul.
Mary S. Whetstone, Minneapolis.
J. B. White, Faribault.
I. C. J. Wiig, Minneapolis.
H. H. Wilcox, Albert Lea.
Charles W. Williams, Minneapolis.
Cornelius Williams, St. Paul.
John Williams, Lake Crystal.
U. G. Williams, Minneapolis.
H. H. Witherstine, Rochester.
E. S. Wood, St. Paul.
H. M. Workman, Tracy.
C. D. Wright, Minneapolis.
C. O. Wright, Kasson.
F. R. Wright, Minneapolis.

Honorary Members

C. H. Alden, Washington, D. C.
Frank Allport, Chicago, Ill.
C. B. Ayers, Omaha, Neb.
Wm. Baldwin, St. Paul.
George W. Crile, Cleveland, O.
E. S. Dudley, Chicago, Ill.
F. W. Epley, New Richmond, Wis.
H. W. Gentles, Chicago, Ill.
J. B. Griswold, Grand Rapids, Mich.
C. C. Hayes, Chippewa Falls.
F. A. Johnson, Chicago.
W. F. Lewis, Mankato.
J. W. Reed, Lime Springs, Ia.
Nicholas Senn, Chicago, Ill.
J. V. Shoemaker, Philadelphia.

Deceased Members

E. D. Abell, Farmington.
C. P. Adams, Hastings.
Charles T. Allen, Minneapolis.
A. E. Ames, Minneapolis.
Francis Atwood, St. Paul.
Otis Ayers, Le Sueur.
Louis Bauer, St. Louis, Mo.
Charles Berry, New Ulm.
E. T. Bingham, Medford.
F. A. Blackmer, Albert Lea.
Solomon Blood, Owatonna.
W. H. Byeford, Jr., Minneapolis.
C. Carli, Stillwater.
Perry Chance, Delano.
W. W. Clark, Mankato.
J. B. Cole, Wabasha.
J. M. Cole, Winona.
D. B. Collins, St. Peter.
H. L. Coon, Northfield.
Henry Cotton, Minneapolis.
Edwin Crone, Kirkhoven.
Rollin E. Cutts, Minneapolis.
David Day, St. Paul.
Dwight W. Day, Eau Claire.
W. W. Day, St. Paul.
F. Dedolph, St. Paul.
L. P. Dodge, Farmington.
J. L. Elliott, Duluth.
W. T. English, Winona.
T. B. Etheredge, Hastings.
E. N. Fairbank, Austin.
Christian Fenger, Chicago, Ill.
W. D. Flinn, Redwood Falls.
George F. French, Minneapolis.
J. R. M. Gaskell, Baytown.
A. O. Gilman, St. Cloud.
P. J. Goodhue, St. Paul.
Harold Graff, St. Paul.
S. D. Grant, Watertown.
C. Gronwald, Kenyon.
A. Guernon, Little Falls.
W. E. Hallowell, St. Paul.
D. W. Hand, St. Paul.
H. C. Hand, St. Paul.
Charles C. Hayes, St. Paul.
P. Sprague Haskell, St. Paul.
A. B. Hawley, Red Wing.
P. A. Heitz, St. Paul.
Geo. A. Hendricks, Minneapolis.
N. B. Hill, Minneapolis.
E. A. Holmes, North St. Paul.
Otis Hoyt, Hudson, Wis.
L. D. Jackson, Grand Meadow.
J. C. Jones, Mankato.
D. L. Kenyon, Worthington.
J. B. LaBlond, Sioux Falls, S. D.
G. A. Lamb, Minneapolis.
G. M. Lambert, Stillwater.
F. Lawson, Osseo.
Daniel Leisure, St. Paul.
W. L. Lincoln, Wabasha.
S. H. Lindley, Minneapolis.
C. Lord, Shakopee.
P. McKeon, Minneapolis.
H. McMahon, Sauk Rapids.
T. T. Mann, St. Paul.
P. H. Millard, St. Paul.
Winthrop Miller, Minneapolis.
F. H. Milligan, Wabasha.
A. Mueler, Bienne, Switzerland.
F. W. M. Muller, Henderson.
J. H. Murphy, St. Paul.
J. W. Murray, Minneapolis.
H. F. Noyes, Stillwater.
Elizabeth S. D. Norred, Minneapolis.
A. Ortman, Minneapolis.
Jay Owens, St. Paul.

B. B. Palmer, Sauk Center.
Ralph Parkin, Minnesota Lake.
W. K. Perrin, Minneapolis.
J. B. Phillips, St. Paul.
T. R. Potts, St. Paul.
A. C. L. Ramsey, St. Cloud.
H. R. Randall, Rochester.
George Ranson, St. Peter.
S. S. Reimstad, Madelia.
J. K. Reiner, Stillwater.
W. H. H. Richardson, Winona.
A. H. Salsbury, Minneapolis.
A. E. Senkler, St. Paul.
S. B. Sheardown, Winona.
Charles Slaughter, Duluth.
W. J. Sloan, U. S. A.
E. H. Smith, St. Paul.
F. R. Smith, St. Paul.
F. H. Spaulding, Long Prairie.
E. C. Spencer, St. Paul.
H. S. Sprague, Hastings.
Jacob H. Stewart, St. Paul.
E. H. Stockton, Minneapolis.
S. P. Stoddard, Lake Crystal.
J. J. Stone, Argyle.
A. B. Stuart, Santa Rosa, Calif.
W. W. Sweeney, Red Wing.
Samuel Thayer, Burlington, Vt.
J. E. Tibbits, Cannon Falls.
Geoffrey Vivian, Alexandria.
J. L. Wakefield, Shakopee.
S. Wallbank, Duluth.
O. A. Watier, Stillwater.
W. S. Webb, Worthington.
C. L. Wells, Minneapolis.
R. A. Wheaton, St. Paul.
J. S. Whilldin, St. Paul.
J. Wicke, Nicollet.
Samuel Willey, St. Paul.

Presidents of the Society

SAMUEL WILLEY 1869-1871
FRANKLIN STAPLES 1871-1872
WILLIAM W. MAYO 1872-1873
WILLIAW W. SWEENEY 1873-1874
NATHAN B. HILL 1874-1875
JOHN H. STEWART 1875-1876
FRANCIS H. MILLIGAN 1876-1877
OTIS AYER 1877-1878
JEREMIAH E. FINCH 1878-1879
ALBERT C. WEDGE 1879-1880
ALEXANDER J. STONE 1880-1881
CHARLES N. HEWITT 1881-1882
PERRY H. MILLARD 1882-1883
WILLIAM L. LINCOLN 1883-1884
JAMES B. McGAUGHEY 1884-1885
EDWARD J. DAVIS 1885-1886
HANNIBAL H. KIMBALL 1886-1887
CHARLES F. McCOMB 1887-1888
CHARLES A. WHEATON 1888-1889
JAMES H. DUNN 1889-1890
WARREN L. BEEBE 1890-1891
PARKS RITCHIE 1891-1892
AMOS W. ABBOTT 1892-1893
WILLIAM J. MAYO 1893-1894
JUSTUS OHAGE 1894-1895
FRANK ALLPORT 1895-1896
WILLIAM D. FLINN 1896-1897
JOHN F. FULTON 1897-1898
FREDERICK A. DUNSMOOR 1898-1899
WALTER COURTNEY 1899-1900
WILLIAM DAVIS 1900-1901
WILLIAM ASBURY HALL 1901-1902

Contents

PAGE.
Andrews, J. W.: Conservatism in Surgery..... 137
Barber, J. P.: Pneumonia in Children..... 55
Barton, George E.: Report of Two Cases of Ectopic Pregnancy, with Discussion of the Diagnosis and Time to Operate 220
Benjamin, A. E.: Nephropexy, with Especial Reference to the Indications for, and the Method of, Performing the Operation, with Report of Illustrative Cases..... 205
Bladder, Irritability of the..... 123
Bracken, H. M.: How can the public Best be Educated as to the Importance of Preventive Medicine?..... 276
Brimhall, J. B..... 240
Brown, Edward J.: Squint and Other Muscular Anomalies 174
Catlin, T. J.: More Care for Fractured Clavicles.....159
Casts, Plaster-of-Paris 252
Chest, Inspection as a Factor in the Physical Examination of Diseases of the..... 45
Chlorosis 87
Clavicles, More Care for Fractured..... 159
Constipation and How to Cure It..... 59
Constitution and By-Laws..... 295
Cooney, H. C.: Intestinal Obstruction..... 189
Courtney, Walter: Fractures of the Patella, with Special Reference to Their Treatment by Suture..... 162
Crile, George W.: Some Operations for Malignant Diseases of the Mouth and Neck..... 151
Cysts, Cerebral, with Presentation of a Case..... 142
Davis, William: The Organization of the Profession (President's Address) 17
Elbow-Joint, Treatment of Fractures and Injuries about.... 240
Epilepsy, Some of the Etiological Factors in..... 279
Epileptoid Conditions, Some Clinical Features of..... 282
Fever, Typhoid, The Pathology of..... 128
Fliesburg, Oscar A.: A Plea for Instruction in Massage and Kinetotherapeutics (So-called "Swedish Movements") in the Curriculum of Our Medical Colleges..... 287
Forceps, The Obstetric, May We not Safely Use Them in Every Case of Labor?..... 184
Foster, Burnside: The Reciprocal Relations between Physicians and Medical Journals..... 262

PAGE.
Gillette, A. J., and Brimhall, J. B.: Treatment of Fractures and Injuries about the Elbow-Joint..... 240
Graham, Christopher: Dilatation of the Stomach..... 75
Hall, William Asbury: Organization of the Medical Profession: Its Aims and Benefits (President's Address)..... 35
Head, Geo. Douglas: Chlorosis..... 87
Jones, W. A.: Some of the Etiological Factors in Epilepsy.. 279
Kelsey, C. A.: Plaster-of-Paris Casts..... 252
Leavitt, Frederick: The Obstetric Forceps: May We not Safely Use Them in Every Case of Labor?..... 184
Lind, A.: Swedish Movements and Massage 102
Macdonald, J. W.: Cerebral Cysts, with Presentation of a Case 142
Massage and Kinetotherapeutics (So-called "Swedish Movements"), A Plea for Instruction in, in the Curriculum of Our Medical Colleges..... 287
Mayo, C. H.: Rectal Prolapse..... 147
Medical Journal, The Reciprocal Relations between Physicians and 262
Medical Literature, The Character and Tendency of Our Current, with Notes on Its Development, Progress, and Influence 50
Medicine, Preventive, How Can the Public Best Be Educated as to the Importance of?..... 276
Moore, James E.: The Influence of Age upon Surgical Operations 229
Mouth and Neck, Some Malignant Diseases of the..... 151
Murray, William R.: Chronic Inflammation of the Pharyngeal Tonsil without Interference with Nasal Breathing.. 107
Nephropexy, with Especial Reference to the Indications for, and the Method of, Performing the Operation, with Report of Illustrative Cases 205
Nippert, L. A.: Inspection as a Factor in the Physical Examination of Diseases of the Chest..... 45
Obstruction, Intestinal..... 189
Officers and Committees 8
Operations, Surgical, The Influence of Age upon..... 229
Patella, Fractures of the, with Special Reference to Their Treatment by Suture..... 162
Peritonitis, The Fallacy of Drainage in Diffuse Septic..... 177
Pneumonia in Children 55
Proceedings of the Thirty-third Annual Meeting..... 9
Proceedings of the Thirty-fourth Annual Meeting..... 23
Pregnancy, Ectopic, Report of Two Cases of, with Discussion of the Diagnosis and Time to Operate..... 220
Pritchard, Donald B.: The Fallacy of Drainage in Diffuse Septic Peritonitis 177
Profession, The Organization of the 17
Profession, Organization of the Medical..... 255
Profession, Organization of the Medical: Its Aims and Benefits 35
Prolapse, Rectal 147
Puerperal Eclampsia, Can We by Modern Methods Anticipate Impending Attacks of?..... 113

PAGE.
Rees, Soren P.: The Value of Simple Methods in the Examination of the Stomach..... 64
Rishmiller, J. H.: Irritability of the Bladder..... 123
Rogers, A. C.: Some Clinical Features of Epileptoid Conditions 282
Rothrock, J. L.: Can We by Modern Methods Anticipate Impending Attacks of Puerperal Eclampsia?..... 113
Sanatoria. State, for Consumptives..... 268
Snévé, Haldor: Constipation and How to Cure It..... 59
Squint and Other Muscular Anomalies..... 174
Staples, Franklin: The Character and Tendency of Our Current Medical Literature, with Notes on Its Development, Progress, and Influence..... 50
Stomach, Dilatation of the..... 75
Stomach, The Value of Simple Methods in the Examination of the 64
Surgery, Conservatism in 137
Swedish Movements and Massage..... 102
Sweeney, Arthur: Organization of the Medical Profession. 255
Taylor, H. Longstreet: State Sanatoria for Consumptives 268
Tonsil, Chronic Inflammation of the, without Interference with Nasal Breathing..... 107
White, S. Marx: The Pathology of Typhoid Fever..... 128

The next meeting of the Society
will be held at
St. Paul
on the third Wednesday in June
1903

UNIVERSITY OF MICHIGAN
3 9015 06275 2343